Final Report

Contract No. CT212142
Sponsoring Agency: U.S. Department of the Interior, Office of Surface Mining
Project: Coordinated Review of Mountaintop Mining/Valley Fill EIS Economics Studies
Contractor: Hill & Associates, Inc.

Date: January 13, 2003

I. Background

The purpose of this study is to provide support, through funding by the Office of Surface Mining (OSM), for the multi-agency Mountaintop Mining/Valley Fill Environmental Impact Statement (MTM/VF EIS) Steering Committee in performing a coordinated review of prior economics studies done during the development of the MTM/VF EIS. Early in 2002 the Steering Committee determined that the prior work done for Phase I of the economic impacts studies had problems which resulted in substantial limitations on its use in further analysis. Since that work was used as input for the coal and electricity markets modeling of Phase II, the results of this economic modeling were deemed questionable.

This current study seeks to answer the question ***"In what direction and by approximately what magnitude would the economic modeling results of Phase II change if a different set of Phase I inputs, drawn from on-the-ground, real-world mining experience to date, were used?"*** Since it is specifically defined as a true sensitivity study, this current work is carefully designed to change nothing from the previous work except the modeling inputs that were considered to have problems from the previous Phase I work. Since it was not known exactly how these inputs would be changed until partially through the project, all work was done with step-by-step close review and coordination by the OSM Contracting Officer's Technical Representative (COTR), with EIS Steering Committee concurrence at certain key decision points.

It is important to note that this work was commissioned solely as a sensitivity study. It does not attempt to cover all of the scenarios of the previous work. Nor does it provide all of the market interpretations in the earlier study. Rather, it is designed to point directions and very rough magnitudes of output change resulting from input change.

As with the previous work, all coal tons (and related parameters) in this report are steam coal tons (arising from the modeling of the steam coal markets) and do not include about 40 million annual tons of metallurgical coal produced in the region. Since the vast majority of these met coal tons are produced by underground mining, which is assumed unaffected in this study, the various impacts of valley fill restrictions on coal tonnage are the same without including the met coal tonnage.

Although this report is intended to effectively communicate the sensitivity results on a stand-alone basis, it is expected that most readers will have read the earlier report (see draft MTM/VF EIS, Appendix G), dated December 12, 2001, (under EPA Contract No. 68-R3-01-04) which is the comparison basis for the sensitivity work. In particular, this current report does not attempt to capture all of the explanatory detail concerning the Hill & Associates market models that was included in the earlier report. However, where necessary to interpret the new results from the sensitivity model runs, the same previous mining cost curve logic will be used and even extended in this report.

Since this study is presenting sensitivity results compared to previous work, it will be necessary frequently to refer to that earlier work. Throughout the remainder of this report, the words "old," "previous," and "earlier" when applied to computer model runs or their results will indicate that we are talking about the work done during 2001 under EPA Contract Number 68-R3-01-04 and included in the report dated December 12, 2001.

II. Methodology

Work under this contract was broken into four segments:

A. During the initial segment of work, a "kickoff" meeting was held in Charleston, West Virginia, on October 17, 2002, to present to stakeholder representatives an overview of the previous economic impact work and the limitations of the analyses and results. Representatives from the environmental community, the coal mining industry, academia and various governmental agencies were in attendance. Although feedback was solicited at this meeting, a combination of confidentiality considerations and complexity of the presented material resulted in a lack of detailed quantitative suggestions for adjusting the modeling input parameters for any subsequent modeling.

B. In anticipation of this lack of detailed feedback in a large group setting instantaneously after being exposed to the analytical methodology, the second segment of work involved follow-up meetings with various stakeholder representatives. Reflecting the diversity of attendees at the original "kickoff" meeting, we held follow-up discussions with members of the environmental community, representatives from academia, governmental agency personnel, and technical representatives from the coal mining industry. In the case of coal mining industry representatives, these follow-up meetings were held one company at a time under strict confidentiality agreements since it was necessary to discuss extremely detailed mining costs, which are among the most competitively sensitive pieces of information in the industry. Results from these follow-up meetings are reported later in this report on a non-confidential aggregated basis.

C. The third segment of work involved the actual re-running of the economic market models using the same setup as the 2001 earlier project except for the more real-

world oriented front-end input related to indications of reserve, capacity and cost impacts of valley fill limitations derived from stakeholder discussions. Stakeholder information was synthesized and interpreted base upon Hill & Associates professional experience to create new input assumptions as described further in this report. The resultant new modeling outputs, and their comparison to the earlier results, form the heart of the "Results" section of this report.

D. The final work segment of this contract involved interpretation and presentation of the sensitivity results in this report format.

II.A. Modeling Scenarios

Due to time and budget limitations, the sensitivity modeling was limited to 20 single-year convergences of the Hill & Associates modeling system. (The reader is referred to the earlier report in Appendix G of the MTM/VF EIS for a full discussion of how these models work.) Originally, this contract effort envisioned two selected scenarios, each containing ten consecutive years parallel to selected scenarios from the previous work. Each of the 10-year scenarios would test different sets of changes in the input parameters, with those sets of changes designed from the Hill & Associates synthesis of stakeholder input.

However, the MTM/VF EIS agencies decided that the 20 single-year model convergences (which must be run consecutively, in a calendar sense, because the models accumulate effects such as clean-up equipment installation and mine reserve depletion from one year to the next) would be best spread over three scenarios as follows:

Scenario #1: A 10-year model run (2002 – 2011) with valley fills limited to 75-acre watershed size. All parameters remained the same as earlier 75-acre runs except for the specific reserve, capacity and cost input changes for surface mines to replace the previous Phase I parameters.

Scenario #2: A 5-year model run (2002 – 2006) with valley fills limited to 250-acre watershed size. Again, all parameters remained the same as earlier 250-acre runs except for the specific reserve, capacity and cost input changes for surface mines to replace the previous Phase I parameters.

Scenario #3: Another 250-acre watershed size 5-year run (2002 – 2006), but with the valley fill restrictions phased in over the first three years instead of occurring instantaneously in the first year. Also, the required discounted cash flow return on investment (ROI) necessary to cause new mining capacity to be built was raised from 15% to 20% to reflect the growing reluctance to invest under the changing valley fill/watershed rules. Thus, this third scenario has two additional sensitivities included: the phase-in of valley fill restrictions and the "reluctance-to-invest" higher required ROI.

The rationale behind the definition of these scenarios, along with the specifics of the input parameter changes, is included in the "Results" section below.

However, it is important to carefully note at this point that ALL of these model runs continue to assume that deep-minable coal reserves will be totally unaffected by the valley fill restrictions. Hill & Associates was specifically instructed by the EIS Steering Committee not to include any impacts on existing deep mining (i.e., it is "grandfathered") or on future new deep mining. This "simplifying assumption" was deemed necessary in order to make the economic studies portion of the EIS consistent with the other portions of the overall EIS, which do not include any deep mining impacts. Hill & Associates was asked to include the statement in this report that the EIS agencies note that this [assumption of no deep mining impacts] is not a statement of policy, but merely an assumption to clearly isolate the effects of surface mining restrictions.

Despite this rationale for the assumption, we must point out that this methodology of assuming absolutely no impact on deep mining DOES have a significant impact on the modeling results and their interpretation. Overall regional economic impacts will depend largely on loss of total coal production plus the related employment loss. Since deep mined tonnage is a larger portion of total production in Central Appalachia than is surface production, any impacts on deep mined tonnage may affect the total of production even more than impacts on surface tonnage. Furthermore, since deep mining is more labor intensive than surface mining, ignoring deep impacts has even a larger impact on employment results than on tonnage. Thus, the apparent impacts of the new fill placement restrictions (under an assumption of no deep mining impacts) appear less significant than they would if this larger, more labor-intensive segment of total production were assumed to be affected in these model runs.

While we are mentioning items that are not included in this analysis, we note that this work does NOT analyze or interpret results of the injunction to preclude issuing CWA Section 404 permits for valley fills imposed on the U.S. Army Corps of Engineers Huntington District by the Federal District Court in West Virginia which, at the time of this writing, has effectively stopped the issuance of CWA Section 404 permits for valley fills (Rivenburgh v. Kentuckians for the Commonwealth, also known as "Haden II"). Nor does this current work consider or include "stream mitigation" costs that may be imposed by the U.S. Army Corps of Engineers in order to attain Clean Water Act Section 404 (CWA 404) authorization. Both the injunction and CWA 404 mitigation costs would likely have a significant effect on coal mining viability in the study area. However, it is beyond the scope of this contract to consider these input variables.

The method of presenting and interpreting the scenario results will be to graph them, along with the corresponding scenario results from the previous work on the same axes, and then to note the differences between the graphs as reflecting the sensitivity to changing the input parameters. In other words, the original 75-acre modeling results will be plotted alongside the new 75-acre results, and we can see the amount of change caused by the revised inputs.

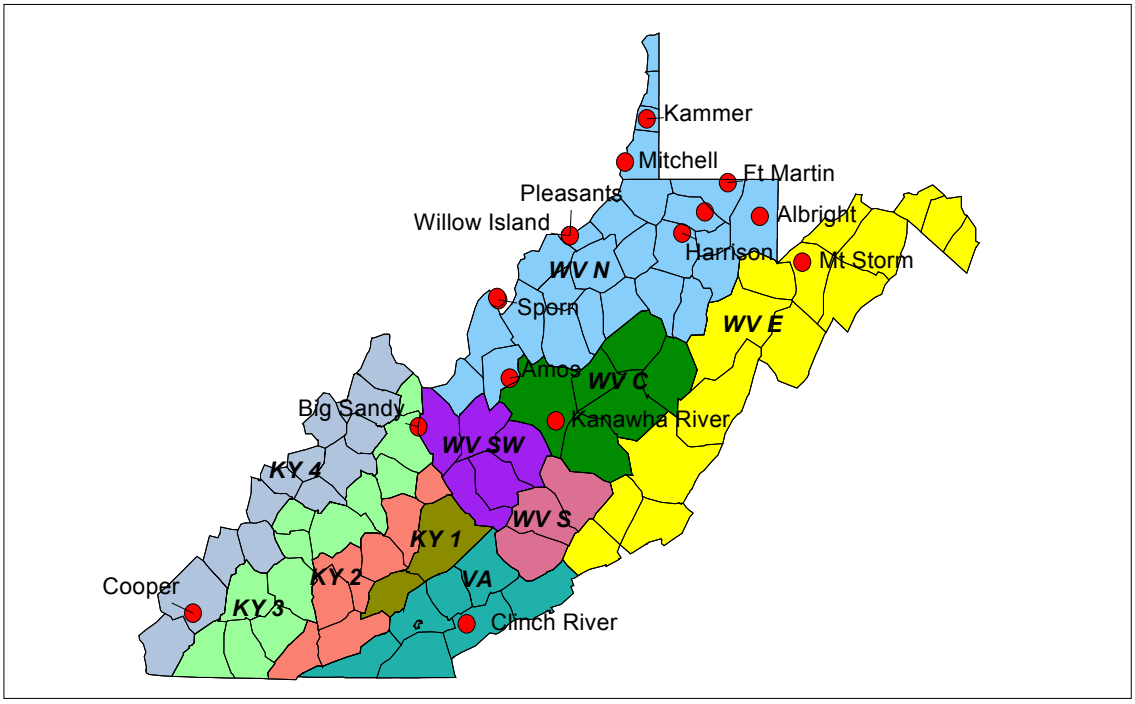
In all cases, the original baseline forecast at 15% required ROI, which matches all scenarios except Scenario #3 above, is also included on the graphs. This Base Case was specified by the EIS Steering Committee to represent pre-restriction conditions for Central Appalachian surface coal mining. Thus, the report allows comparison of production changes from the Base Case for "Old" and "New" modeling runs (e.g., "Old" 75-acre tonnage loss versus "New" 75-acre tonnage loss, or "Old" 250-acre to "New" phased in 250-acre).

III. Results

Since the new model runs do, in fact, produce all of the detailed data output for each year as did the previous model runs from the earlier work in 2001, similar detailed Appendices are contained in this report. Obviously, where a scenario stops after 5 years, the appropriate appendix table will simply have blanks for the second 5 years of the 10-year general project time horizon.

Figure 1 presents the mining sub-regions of the study area. The detailed data results in the Appendices are organized around these sub-region definitions, with totals at the bottom of each table. As the map shows, there are five mining sub-regions in West Virginia, four in eastern Kentucky and one in Virginia.

Figure 1 – Sub-Regions of the Study (With Power Plants)



However, despite the inclusion of this sub-regional detailed output in the Appendices, the remainder of the commentary in this report will focus on the much more generalized sensitivity directions and rough magnitude of output changes (due to the changed inputs) for the total study area.

III.A. Findings from Individual Stakeholder Meetings

Shortly after the initial "kickoff" meeting of this project, a team of technical specialists from Hill & Associates made separate visits to individual coal mining companies to research actual "on-the-ground" impacts experienced and projected due to valley fill restrictions. Coal producers representing approximately 60% of the affected surface mine tonnage in southern West Virginia and eastern Kentucky were visited.

Since these meetings were to be held under strict confidentiality agreements, some concern was expressed at the initial "kickoff" meeting in Charleston, WV, regarding whether bias might exist in the quantitative information that would be conveyed in these meetings. As a design safeguard against any possible bias, the Hill & Associates team adopted the following three-pronged cross-check of the quantitative information obtained on the visits to coal producing companies:

1. Using mining engineering, geological and financial analysis expertise from members of the interview team, we asked very detailed questions about the sub-pieces of the numbers presented to validate information. For example, if a higher cost of mining was presented under a valley fill restriction, we asked for the sub-pieces of that higher cost and engaged in detailed discussion of why a particular sub-piece of cost, such as transportation of overburden to an alternate disposal area, would be that high and how it was calculated or measured. We would not leave this detailed questioning of sub-pieces until we felt we understood the numbers and that they "rang true" with our expertise and past experience.

2. Where an "after valley fill restriction" number was presented, we would ask to examine the exact corresponding "before valley fill restriction" number and compare the two. This allowed us to examine original monthly mine cost sheets, for example, or reserve calculations from periods before the mine had to be reconfigured to accommodate the loss of particular valley fills. In this manner, we could easily determine that the same methods of measurement and calculation were used for both the current numbers and the historic numbers.

3. After examining in detail a particular property that had been prepared for presentation to us to illustrate the valley fill restriction impacts, we would then ask to see actual data on another random unprepared property that was not as strongly affected by the valley fill restrictions. Often, this required the staff at the coal producing company to pull maps, mine cost sheets, reserve calculations, etc, from filing cabinets in adjoining rooms to get all of the information on this

random other property (that we often pre-selected before the visit, based upon our knowledge of the mines of the company).

This three-pronged, cross-check approach allowed us to examine all quantitative information from several different directions and test whether there appeared to be any bias (no matter how unintentional) in the numbers. In no case did we see any bias in the numbers, and we concluded our series of mine visits with a very strong feeling that we were given exactly the same internal costs and reserve/capacity numbers that the coal producers themselves were using to make operational decisions and capital investment decisions.

Furthermore, although each coal producing company has its own unique procedures and measurement techniques (which cause some differences in the meaning and interpretation of any single number), we came away with the conclusion that each producer with whom we had discussions was using technically appropriate and reliable methods of measuring and calculating their costs and capacities and of estimating their reserves. It was our task, not theirs, to adjust all of these numbers onto a common basis and to synthesize them into a set of parameters to use as new modeling inputs affecting reserves, capacities and mining costs at different types of mines under various valley fill restriction levels.

Stakeholder Feedback

General qualitative findings from our stakeholder interviews include:

- Careful review of numerous mining property maps at each of several coal producing companies supports a conclusion that there is much more difference between the topography of eastern of Kentucky and the topography of southern West Virginia than our earlier work assumed. Generally, the eastern Kentucky surface mining properties have smaller, but more numerous, valleys (including smaller watershed drainage) than do the southern West Virginia properties. This is important because a 250-acre watershed valley fill limitation affects many surface properties in West Virginia but extremely few in eastern Kentucky. However, below about 100-acre watershed size, the number of affected eastern Kentucky properties rises dramatically. Thus, even for the same type of surface mine using similar equipment, the model should use different reserve, capacity and cost adjustments in eastern Kentucky than those used in southern West Virginia (with Virginia being more similar to eastern Kentucky). In addition to geologic and topographic causes, these differences appear also to be related to variable mineral and surface ownership patterns across state lines and the size of remaining reserve blocks.

- We received strong input from the mining community that it is an egregious mistake to ignore impacts of the valley fill limitations on deep mines, especially new ones. First, many deep mines are co-dependent on related surface mines for quality blending requirements and even economic averaging arrangements.

Eliminating or reducing the surface mining has a direct impact on the viability of the deep mining in these instances. Second, the typical reject rate in Central Appalachia from a wash plant associated with a deep mine is about 50%. Thus, for every one ton of coal mined, one ton of refuse is placed in a valley fill or related impoundment. In fact, the valley fills associated with wash plant refuse are generally among the larger valley fills associated with coal mining (with generally larger watershed) but are fewer in number than surface mining valley fills. Third, the construction of a new deep mine involves other valley fill issues. Often, a new deep mine is accompanied by a new wash plant with a new valley fill for refuse. Plus, in order to "face up" the entrances to the new deep mine, a new valley fill for the mine entrance is typically needed. Collectively, industry representatives commented that it was disingenuous to think that any valley fill restrictions related to surface mining refuse would not be very quickly extended to deep mining refuse.

- During our stakeholder interviews, selected environmental community representatives expressed concern over the fact that the methodology of these economic studies does not include "ecological economics," which consider the "total cost of mining" as it is defined by many in the environmental community. Factors such as "loss of communities" and "value of the ecosystems services lost" are not being monetized into the hard dollar economics, in their view. One environmentalist commented that as long as studies such as these continue to rely on "the inadequacies of old-school economics" which deal only with whether the coal can be economically extracted, many in the environmental community would consider the approach to be patently absurd. In a telephone conversation, the opinion was expressed that "reducing this [study] to simple economics is a terrible injustice to the long-term health of our environment and life as we know it." While we at Hill & Associates are familiar with the concept of including "externality costs" (a monetary value assigned to some environmentally-desired outcome) in economic calculations, we indicated in our discussions with the environmental community representatives that we always perform our economic analyses according to the more classical, or traditional, methodology.

- During discussions with mining company representatives, input on the "reluctance to invest" issue was elicited in a manner carefully structured to avoid biasing the answers. Neutral questions were posed about the capital allocation to company projects (or, in the case of smaller companies, discussions centered on dealings with lenders who finance their new mining capacity projects). For instance, a neutral question would be raised such as "If you had a new mine project that could be designed to fit within these new valley fill restrictions and still show good economics by hitting your classical ROI target rate (but not way above it), would the decision-making process be the same today as it was 3 or 4 years ago?" In almost every case, a negative response occurred, ranging from "We know not to even submit one that is not significantly better than our traditional ROI 'hurdle' rate – It wouldn't get approved," to the more succinct "Our management definitely requires a risk premium to invest in this area today," to the even more

concise "I'm trying to figure out what kind of work I'll be doing after we close down all these mines." Our conclusion was that there is clearly developing a definite reluctance to invest in this area, due to the perception of a hostile regulatory environment. This conclusion was instrumental in designing a portion of Scenario #3 described above.

Now we turn to the more quantitative findings from our stakeholder interviews. The previous study's methodology focused on county-level reduction percentages, with all surface mines in a given county reduced (in the modeling) by the same percentage both for reserves and for annual production capacity. Furthermore, no cost increases at individual mines were included in the previous study when the mining techniques were changed for the residual mining after the county-wide reduction percentage was applied. Although there was a recognition that costs at the residual mine would likely increase due to less efficient mining methods extracting remaining reserves and associated equipment costs, Steering Committee members indicated that no real research into this issue had yet been accomplished and there was no quantitative basis (at the time the previous modeling was started) for establishing a reliable estimate of individual cost increases.

By contrast, the individual stakeholder interviews of this current study resulted in recognition that (1) instead of applying reduction percentages by county, more realistic reductions for reserves and capacity would occur by type of mining (i.e., dragline mines experience one level of reduction, shovel & truck mines another reduction, front end loader operations yet another, etc.), (2) there should be different reduction percentages for reserves and capacity within each mine type category since reserves are generally reduced more than is the annual production capacity, and (3) cost increases at the residual mine (after reductions) occur and are easily quantified based on recent experience under existing CWA 404 250-acre watershed restrictions.

With regard to "1" above, it is important to note that the modeling approach is still "generic" in applying reduction factors to all members of a mining type group, but the new grouping definitions (by mine type) are more homogeneous than the previous grouping of various surface mine types in the same county. Thus, although any generic factor approach is almost guaranteed to be a little too high or too low at any selected point, the amount of these individual point errors (from reality) is much smaller when the grouping class is more homogeneous.

With regard to "3" above, the cost increases arise from two factors. First, depending on the mine type, actual changes and/or additions of equipment are often necessary as certain portions of the coal become unminable. The changed or added equipment raises the cost of mining (i.e., if it didn't, then the original mine plan would have utilized this approach). Second, even with the same type of equipment, the mix of less-expensive versus more-expensive operations often changes dramatically under the valley fill restrictions. For example, the amount of inexpensive "dozer push" may be reduced while the amount of higher-cost truck haul to a more distant site may be increased as the toe of a valley fill is designed higher up the valley to limit the amount of watershed. Relatively speaking, sites previously designed to use draglines were impacted the most; shovel jobs

were impacted to a lesser degree; and properties utilizing front-end loaders were impacted to even less.

Reduction percentages and cost increases for each mine type are not presented in this report since that would violate our confidentiality agreements in those cases where there are only one or two mines in a category within a state. Rather, statewide aggregated numbers including all mine types are presented, even though separate factors for each mine type were applied. These statewide aggregations are further combined into averages for the total study area. To compare the amount of change in results from earlier inputs versus those used in this study, the aggregated averages for the total study area from the previous work will also be presented.

Mining Cost Adjustments

As previously mentioned, Hill & Associates did not increase individual mine costs (for residual mining after reserve and capacity reductions) in the earlier modeling scenarios of valley fill restrictions. The Steering Committee agreed that not enough data existed to accurately quantify those cost changes at that time. However, in this study, interviews with mining companies in Central Appalachia provided data indicating ranges of cost increases for compliance when valley fill restrictions are put in place. The costs increase for the following reasons:

Increased Trucking Distances
As the size of the fills is restricted and more fills are used, trucking distances to disposal areas increase.

Loss of Less-Expensive Dozer Push Yards
Many of the surface mines in West Virginia and Kentucky are designed to maximize the amount of overburden material that can be pushed directly into valley fills with bulldozers. This type of mine design takes advantage of the fact that pushing rock with a bulldozer is much less expensive than picking it up and moving it in rock trucks.

The material that can be moved with bulldozers is located on the flanks of the valley fills. As the fill size is decreased, the linear distance along the sides of the fills is decreased; less of the total material can be directly pushed into the fill and must be trucked.

There are two ways that valleys can be filled - from the top down or from the bottom up. The state of West Virginia is now considering a change in the mining law to eliminate the option of filling valleys from the top. If this legislation were to pass, no companies would be able to push material in from the sides. However, in these scenarios, we assume that producers will still be able to fill in the more economic manner.

Inability to use Larger Equipment
The valley fill restrictions reduce the amount of minable reserves available on most properties. In both the 250- and 75-acre cases, the active draglines would be idled and mining conducted by smaller equipment -- either a shovel or front-end loader spreads. The cost to move a cubic yard of material with a shovel is more expensive than to move a cubic yard of material with a dragline. Likewise, costs are even greater to move overburden with front-end loaders. Furthermore, the smaller equipment cannot extract coal available deeper in the hillside, and fixed costs must be spread over a smaller number of tons. Therefore, as equipment size is decreased, both the variable cost per ton and the fixed cost per ton tend to increase.

Construction of Additional Sediment Control Ponds
As companies replace fewer larger fills with many smaller fills, sediment control ponds must be constructed to control runoff in each additional watershed affected by the fills.

The following table shows the weighted average cost increases for surface mines by state.

Table 1
Weighted Average Surface Mine Cost Increases

Region	250 Acre Case	75 Acre Case
West Virginia	12.8%	25.1%
Eastern Kentucky	2.2%	4.6%
Virginia	0.0%	1.3%
Total Study Area – New	7.7%	13.7%
Total Study Area – Old	0.0%	0.0%

Reserve Reductions

In the original study, RTC provided a spreadsheet to Hill & Associates with estimates of recoverable reserves for the unrestricted case and each of the restricted valley fill scenarios for each of the counties in West Virginia. Hill & Associates then applied the percentage reductions to all surface mine properties on a county-by-county basis. The following table shows the percent reserve reduction by state that resulted from our adjustments on the basis of mine type for the new modeling runs.

Table 2
Weighted Average Surface Mine Reserve Reductions

Region	250 Acre Case	75 Acre Case
West Virginia	32.3%	63.4%
Eastern Kentucky	5.0%	15.2%
Virginia	0.0%	10.0%
Total Study Area – New	21.7%	45.0%
Total Study Area – Old	17.3%	46.0%

Capacity Reductions

In the original study, Hill & Associates assumed, on average, that the capacity to produce coal would be reduced by the same proportion as the reserve reductions of each scenario. In this set of model runs, the production capacity was not reduced by nearly as much as the reserves. Using information from stakeholders, we used our professional judgment to derive the applied adjustments. Overall, the life of the mine is more strongly affected than is capacity.

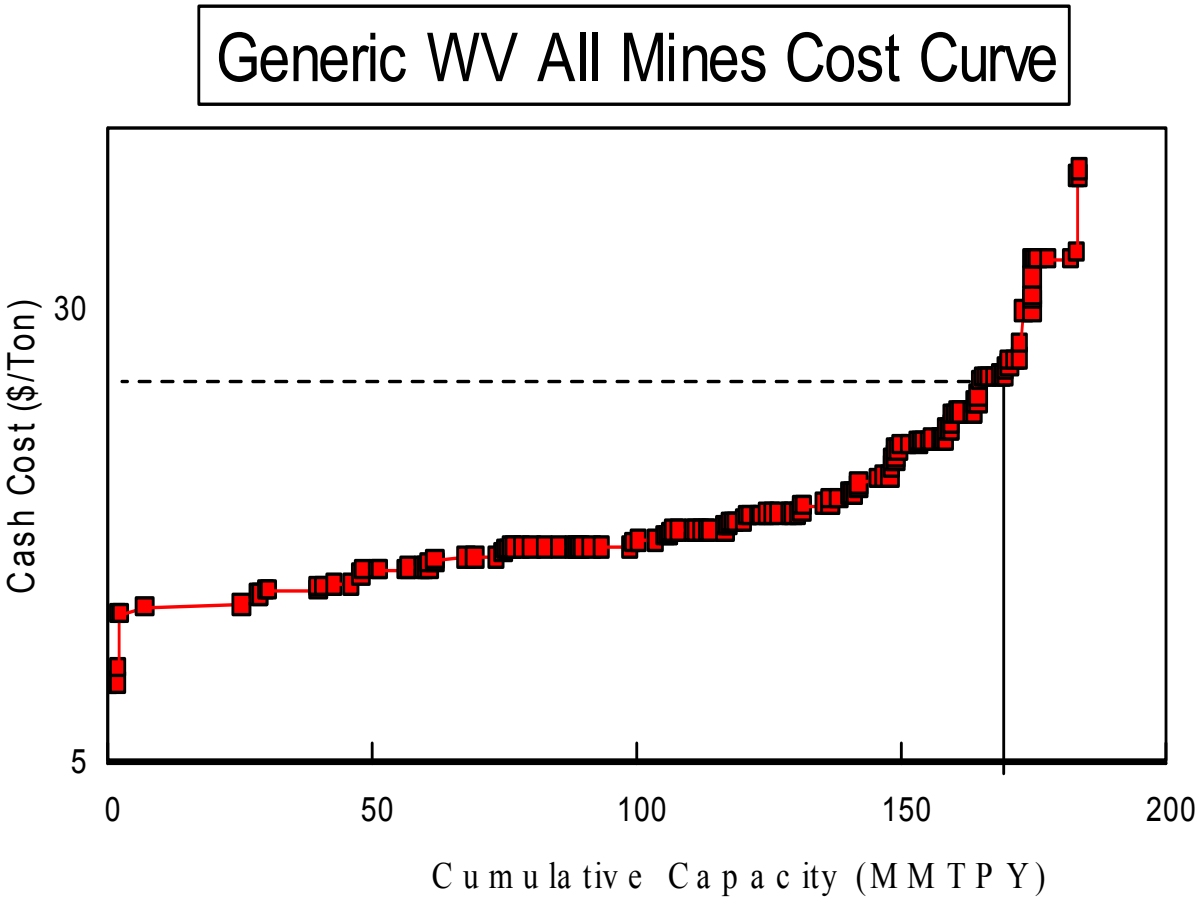
Table 3
Weighted Average Surface Mine Capacity Reductions

Region	250 Acre Case	75 Acre Case
West Virginia	37.9%	50.8%
Eastern Kentucky	0.0%	10.0%
Virginia	0.0%	5.0%
Total Study Area – New	20.4%	31.6%
Total Study Area – Old	17.3%	46.0%

Without careful reflection, these tables can be misleading. In particular, comparing the "New" with the "Old" for the total study area indicates that the reserve and capacity reductions are only modestly higher in the "New" 250-acre setup and are actually somewhat lower in the "New" 75-acre case. However, this aggregated total does not capture the fact that the reductions were more uniformly distributed across any individual mine curve in the "Old" modeling runs. For the purposes of this discussion, the generic

mining cost curve used in the previous study is presented below to explain some modeling parameters.

Figure 2



For example, a large dragline mine with low cash costs per ton is very low on the cost curve. A much smaller contour stripping operation (using front end loader equipment) is typically in the middle of the curve or even toward the upper portion. In the original study, as long as both of these mines were in the same county, they would both have the same reduction factors applied to them. Thus, the impacts tended to be distributed across the entire curve in the previous study.

Now, however, the dragline operation in this current study will have much larger reduction factors (determined for the entire class of dragline operations) applied to it, while the front end loader operation's reduction factors will be smaller. Thus, the impact of the "average" reductions shown in Table 1 above tend to fall more heavily on the lower cost side of the curve in the "New" runs of this study. That is important because it

steepens and "raises" the curve more than in the "Old" runs, which makes the coal generally less competitive in the economic marketplace.

In addition to this rise in the upper part of the curve due to the "horizontal" compression (in a graphical sense in Figure 2) of capacity lower in the curve, these "New" runs have an additional vertical rise (in the graph) of certain points, due to the cost increases of the affected surface mines. Again, these cost increases will fall more heavily on the lower portion of the curve, since the dragline and shovel & truck types of mines tend to fall in this portion, and they experience higher cost increases than the "averages" shown in Table 1.

Because of the shifts, the upper portion of the curve (where demand crosses the curve and determines the market clearing price for the coal) can easily be raised an additional $4.00-$5.00 per ton for a West Virginia cost curve in the "New" 75-acre case. This rise, coupled with the "horizontal capacity compression" induced rise in the curve (which can add another few dollars), can easily make the coal much less competitive in the energy marketplace compared to other coals such as foreign coal imported into the U.S., Powder River Basin coal, or even compared to gas-fired electricity generation.

It is important to note that although costs at the upper portion of the mining cost curve can rise by several dollars per ton, this does not necessarily mean that coal prices will rise that much. In fact, demand tends to slide to the left (on a steeper, raised version of Figure 2) to a new competitive "balance point" that may still be a couple of dollars higher, but it is at a lower total of produced tonnage. Thus, there is a trade-off between lost tonnage and higher prices (due to higher costs) until a new market equilibrium point is reached.

State Comparisons

In the original study, RTC did not have detailed coal seam databases for Virginia and Kentucky, like the one used to calculate reserves in West Virginia. Therefore, RTC made comparisons of topography, slopes and drainage patterns in each of the coal-producing counties for eastern Kentucky and Virginia and selected the county in West Virginia that most closely resembled these characteristics. Hill & Associates then used this table of comparable counties as a guide to make reductions of surface reserves in Kentucky and Virginia counties. As an example, if the RTC listing showed that the topographic characteristics of Pike County, Kentucky resembled those in Mingo County, West Virginia – more than it did any of the other county in West Virginia, then Hill & Associates applied the same percentage reductions to Pike County that were used for Mingo County.

In this sensitivity analysis, Hill & Associates made adjustments to the Virginia and eastern Kentucky mines in our database according to information gathered during mine visits with producers. In addition, we weighed the adjustments with information from the OSM valley fill inventory conducted by various state agencies as part of the draft MTM/VF EIS.

In Kentucky, most of the valley fills are 100 acres or less. Only a few of the surface mines have large valley fills. We assumed that only the largest mines in Kentucky (i.e., those that produce over 1.5 million annual tons) would have significant impacts in the 250-acre scenario. Impacts to mines producing less than 1.5 million tons in Kentucky had only slight adjustments for cost, capacity and reserves at the 250-acre level. The smaller mines began to feel impacts as valley fills were restricted to 75 acres of watershed.

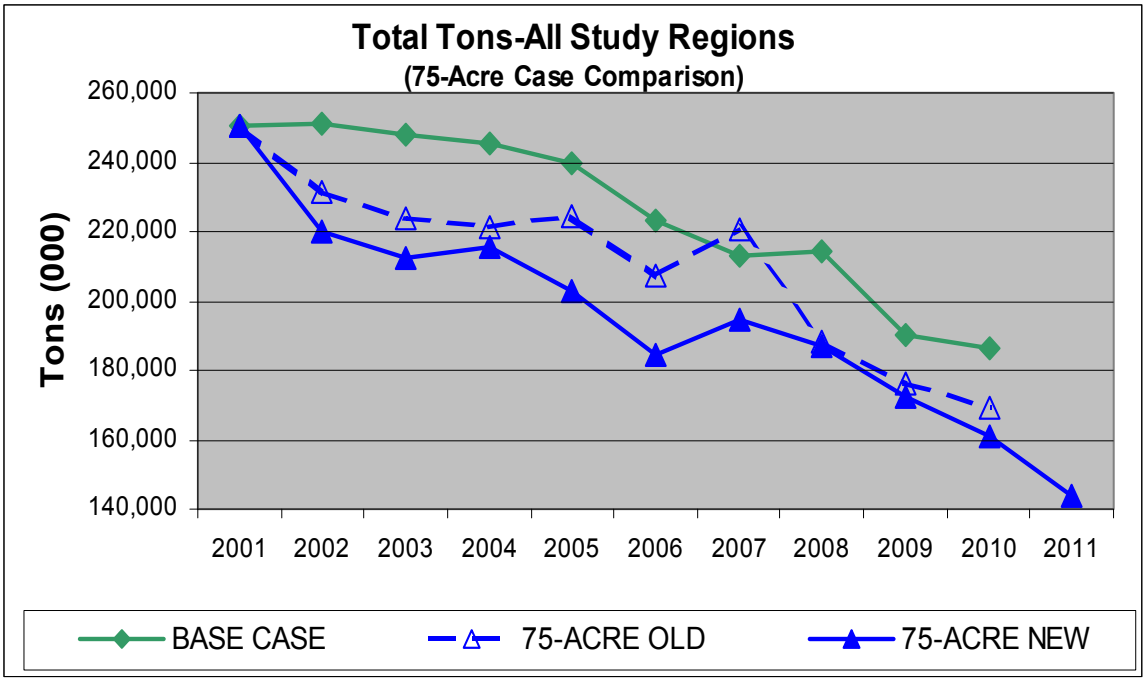
In Virginia, valley fills are even smaller than in eastern Kentucky. The surface mines there are smaller than those in other parts of Appalachia, produce less excess spoil and have more options for spoil placement other than stream valleys. Most of the spoil material is back hauled to the mining pit or placed at sites that were mined prior to SMCRA, thus requiring fewer valley fills. Also, very few mines in this area are able to use cast blasting to move overburden.

III.B. Results of the Sensitivity Modeling

75-Acre Case Production Shifts

The 75-acre case sensitivity to the new inputs (i.e., Scenario #1 defined above) results are shown on Figure 3. This figure graphs the total tons by year from the entire study region for the "Old" and the "New" 75-acre runs, as well as showing the pre-lawsuit status quo Base Case for comparison.

Figure 3



As indicated in the legend, the top line is the Base Case, the dashed line is the "Old" 75-Acre Case, and the bottom line is the "New" 75-Acre Case. Three things are immediately apparent from the graph.

First, the new adjusted model inputs (for surface mining only) cause the total production from the study area (including both surface and deep tons) to drop below the Base Case more than the "Old" 75-Acre results. Instead of falling a somewhat erratic 10-20 million annual tons below the Base Case (see the report from the previous study in the MTM/VF EIS Appendix G for a description of the causes behind the erratic "bouncing" of the "Old" results), the "New" case tends to be a somewhat more consistent 30-40 million annual tons below the Base Case. As the general decline of Central Appalachian tonnage in all cases continues (due to the declining reserve base in the region) from roughly 250 million annual tons through the 200 million annual level, this valley fill restriction impact represents approximately 15%-20% of the total production from the area.

Second, the amount of "bouncing" in the curve is somewhat less in the "New" case. This indicates that as price signals from the marketplace show a need for investment in new capacity, there is simply less available from which to draw, and we see less of the "surge that cannot be sustained" phenomenon than in the "Old" case.

Third, the last two or three points on the "New" graph appear to establish a significant trend heading substantially lower than the other two cases. This is probably due to exhaustion of the "mid-cost" deep reserves within ten years. To be sure, the deep reserves are exhausting at about this same rate in all the cases (including the Base Case) since the bottom section of Appendix Table A-3 shows that deep production is relatively unchanged across all of the cases. However, in both the Base Case and the "Old" 75-Acre case, there are more expandable surface reserves at lower segments of the cost curve (since costs were not raised in these cases) that can come on and effectively "mask" or "offset" some of the impact of exhausting deep reserves. Thus, we conclude that as deep reserves exhaust (in all cases), the overall tonnage impact will be more apparent in the "New" cases (with their raised surface mine costs) than it will be in the comparison cases where there is still some latent surface expansion available at lower cost levels.

Remember that the deep tons are assumed to be totally free from the effects of valley fill restrictions in these runs. If valley fill restrictions apply to deep mining, then a steep drop in annual production is likely to start in earlier years than shown in the graph. The fact that deep mined tonnage is staying basically at its Base Case level is the primary reason in the "New" model runs that the overall tonnage drop is not much larger than 40 million annual tons.

Also, since deep mining is more labor intensive than surface mining, the employment levels shown at the bottom of Appendix Table B-6 for the "New" 75-Acre case would drop much lower if deep mining is affected by valley fill restrictions. In the model runs,

it is largely the fact that deep mining stays roughly at its Base Case levels that keeps the employment levels from falling more rapidly.

With regard to the third point noted above from Figure 3, we are faced with the question, "Why is the deep mining reserve base exhausting (in all cases) so rapidly?" The fact is that some 20% or more of existing capacity in any year expires when many small mines (and even some larger ones that have been producing for a while) simply run out of economically minable reserves. In other words, one out of every five points on the mining cost curve of Figure 2 disappears every year and must be replaced to maintain production levels. In these "New" model runs, the cost increases and reserve reductions for surface mines (especially at the more economic low end of the curve) generally price new replacement surface capacity too high to be developed. However, the deep mining expansion potential has remained the same in all cases, and it tends to be utilized (in all cases) at about the same rate until it begins to be exhausted.

Table 4 below presents the actual amount of new deep mine capacity added each year in the "New" 75-acre runs of the model. The table also presents the total amount of deep production for each year that capacity expansion is listed, along with estimates of the amount of refuse material that is going into valley fills due to this deep mined tonnage.

Table 4
New Deep Mine Capacity Added, Compared to Total Deep Production
"New" 75 Acre Case
(Million Annual Tons)

Year	New Deep Kentucky	New Deep West Virginia	New Deep Virginia	New Deep Tot. Study Area	Deep Production Tot. Study Area
2003	8.21	13.12	2.71	24.04	147.18
2004	10.22	20.30	2.72	33.24	158.03
2005	12.41	29.45	2.95	44.81	154.88
2006	10.29	34.44	3.10	47.83	140.71
2007	19.57	41.36	8.05	68.98	152.77
2008	23.02	43.92	7.27	74.21	150.07
2009	10.82	17.19	4.99	33.00	135.25
2010	43.54	41.33	8.00	92.87	127.08
2011	32.69	41.56	7.87	82.12	106.84
			Cross-Year Total	501.10	1,272.81
Lb / cu ft	100	100	100	100	100
Tons / cu yd	1.35	1.35	1.35	1.35	1.35
	Refuse Million Cu Yds	**Refuse Million Cu Yds**	**Refuse Million Cu Yds**	**Refuse Million Cu Yds**	**Refuse Million Cu Yds**
2003	6.08	9.72	2.01	17.81	109.02
2004	7.57	15.04	2.01	24.62	117.06
2005	9.19	21.81	2.19	33.19	114.73
2006	7.62	25.51	2.30	35.43	104.23
2007	14.50	30.64	5.96	51.10	113.16
2008	17.05	32.53	5.39	54.97	111.16
2009	8.01	12.73	3.70	24.44	100.19
2010	32.25	30.61	5.93	68.79	94.13
2011	24.21	30.79	5.83	60.83	79.14
			Cross-Year Total	371.19	942.82

During each single-year model run, the model tests each point on the mining cost curve to see if the cash margin (of market clearing price above that mine's cost) is large enough to earn the required ROI for that scenario. If so, then that point on the curve (that mine or reserve) is free to add capacity at the annual level possible for the property's expansion.

The model output captured in Table 4 indicates that there is sufficient economically expandable deep capacity (since no valley fill impacts on deep mines are assumed) to bring on the annual new capacities shown. Thus, we conclude that the expansion of capacity by new deep mines (in all cases, including the Base Case) has major influence on the total tonnages presented. In fact, in years 2010 and 2011, total production in the "New" 75 acre case (including both surface and deep production) has dropped to 160 million annual tons or lower, so that brand new deep mine capacity in each of those years represents more than half of the total.

The top section of Table 4 shows that the grand total of newly constructed deep mine capacity over the multi-year period is over 500 million annual tons. At that point, the annual rate of new deep capacity expansion slows down as rapid exhaustion of the economic reserves occurs. It is important to note that it is the economic reserves that are exhausting. Central Appalachia still has huge amounts of coal in the ground at this point, but it cannot be mined at cost levels that are competitive with other fuels. Simply stated, the mining costs of remaining reserves are above viable development levels.

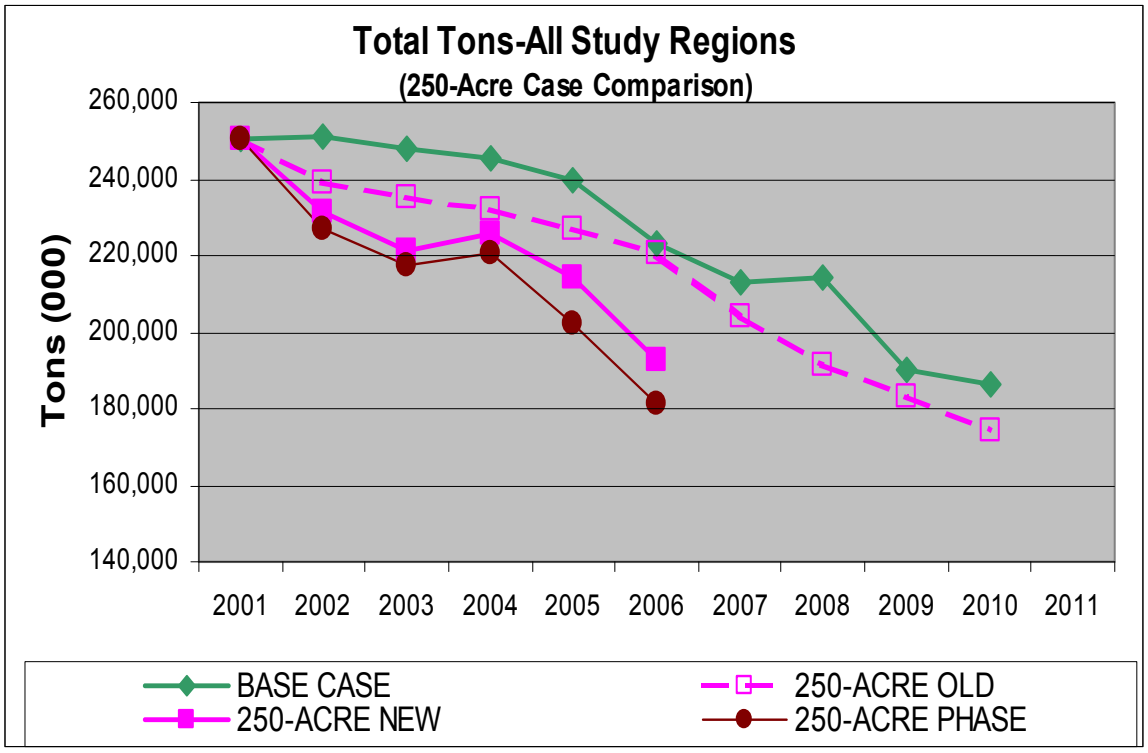
The bottom section of Table 4 indicates that the new deep mine capacity brought on in the model runs results in approximately 371 million cubic yards of refuse that must be placed in valley fills or impoundments. The total for all deep production (from both existing and new mines) approaches 1 billion cubic yards of refuse. These results are presented to highlight the magnitude of the assumption that deep mines are unaffected by the valley fill restrictions.

The bottom line is that expansions of new capacity into the mining cost curves are very sensitive (reflecting the real world condition) to costs of mining. Raising surface mine costs has priced them out of providing new capacity, but leaving deep mining costs unaffected (in the modeling) allows the deep mining to expand as rapidly as it did in the Base Case. This continues with lowest cost mines depleting reserves first, until few minable reserves remain to develop. This appears to happen in the last two or three years of the "New" 75 acre runs

250-Acre Cases Production Shifts

The 250-acre sensitivity cases (Scenarios #2 and #3 defined above) are shown on Figure 4. This figure presents results of the 250 Acre phase-in of restrictions case (including higher ROI) in the bottom graphed line; the "New" 250-Acre Case in the next-to-bottom line; the "Old" 250-Acre Case in the dashed line; and the unrestricted Base Case in the top line.

Figure 4



Not surprisingly, since Tables 2 and 3 above show a relatively stronger change in inputs compared to the old cases for the 250-acre scenarios, this graph shows generally more separation of the "New" 250-acre cases from the "Old" results than we observed in Figure 3 for the 75-acre comparison. In general, a 10-15 million ton impact in the "Old" case (below Base Case levels) has now grown to 20-30 million annual tons below the Base Case, and even 40 million tons under higher ROI constraints in the "250-Acre Phase" case (Scenario #3).

An interesting and unexpected result of these sensitivity runs is that the "New" 250-acre cases and the "New" 75-acre case all fall surprisingly close to each other at roughly 30-40 million tons below the Base Case. This level is basically at, or even below, the previous study's most restrictive 35-acre case. It is surprising that the "New" 250-acre cases are so strongly affected that they are driven down to this level. The inclusion of cost increases in these runs at the residual (after valley fill reductions) mines is the most-likely driving force.

Basically, once surface mining costs are driven high enough that very little new surface capacity can be added (this happens even in the 250-acre cases), then the deep mining properties have trouble bringing on enough new economic capacity to replace all of the annual exhaustions. This occurs even though it was assumed in these runs that each deep mine's reserves, capacity and cost are totally unaffected by the valley fill restrictions. If

even small deep mine impacts from the new valley fill restrictions occur, it is Hill & Associates' opinion that even faster and larger drops in total production undoubtedly would occur, causing higher economic distress in the region.

Although the focus of this report is specifically set at the more generalized level of considering total area results, it is interesting to briefly note a couple of fairly predictable sub-segment results. First, if we were to plot state totals (which we do not since this sensitivity report is focused more generally), we would see that West Virginia is much more affected than eastern Kentucky or Virginia in all of the "New" cases (see state-by-state totals in Appendices A, B and D). This is a very predictable result from the state-level inputs shown in Tables 1, 2 and 3 above. If much higher cost increases and reserve/capacity reductions are input for West Virginia, then it is not surprising to see much higher output impacts in the model runs for this state.

Second, the same principle applies to results for surface mining compared to results for deep mining. We have already commented above on the fact that deep mining production stays relatively the same across all of the scenarios. Another way to look at this is that basically all of the 40 million ton annual drop in production comes in the surface tonnage (again, see the detailed segmented results in Appendices A, B and D). As noted above, this is not surprising since all of the input cost increases and reserve/capacity reductions were applied to surface mines only. Thus, if we were to plot surface and deep results separately (which we do not, because of the more general focus of this sensitivity study), we would see virtually all of the impacts showing up in the surface plot (actually, in the West Virginia surface plot).

Coal Price Impacts Within The Study Area

Figures 5 and 6 present weighted average coal price graphs, in a manner similar to the above tonnage production graphs, for the 75-acre cases and the 250-acre cases, respectively. It is critical to note that these graphs are showing only prices for the geographical area of this study. Any indirect impacts of pulling up prices from other coal-producing regions are not included in this analysis.

Both of the figures below use the same horizontal axis which goes through 2011, even though none of the 250-acre cases were run out through this final year. Of course, the purpose of presenting both sets of results on identical axes is to allow more direct visual comparison as the reader views both sets of graphs.

Figure 5

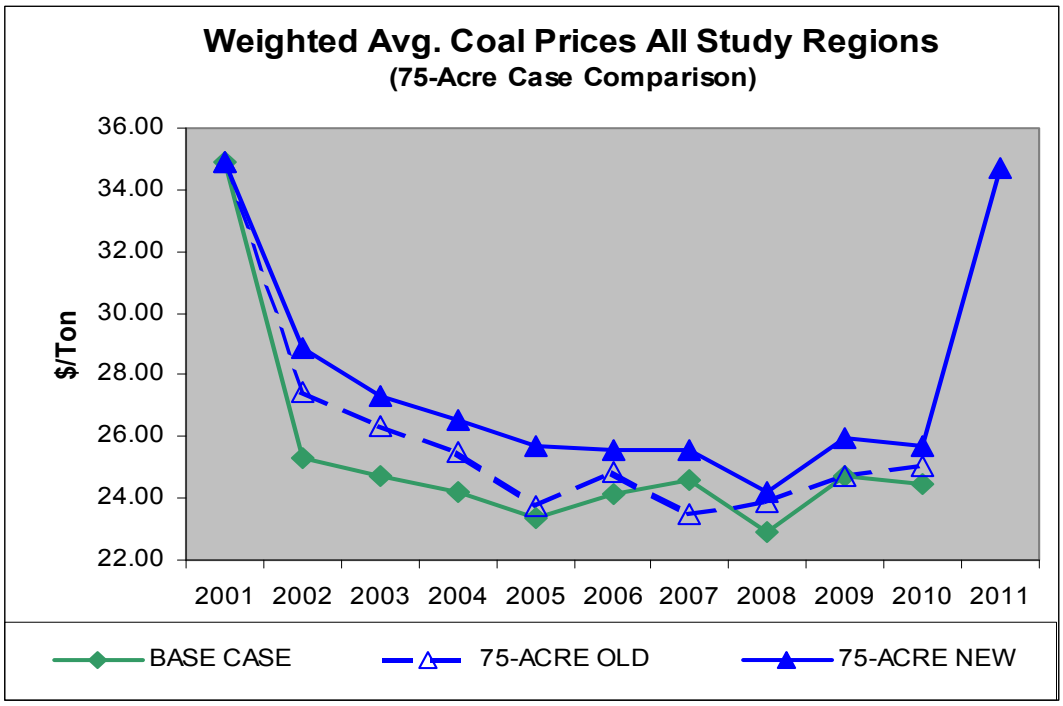
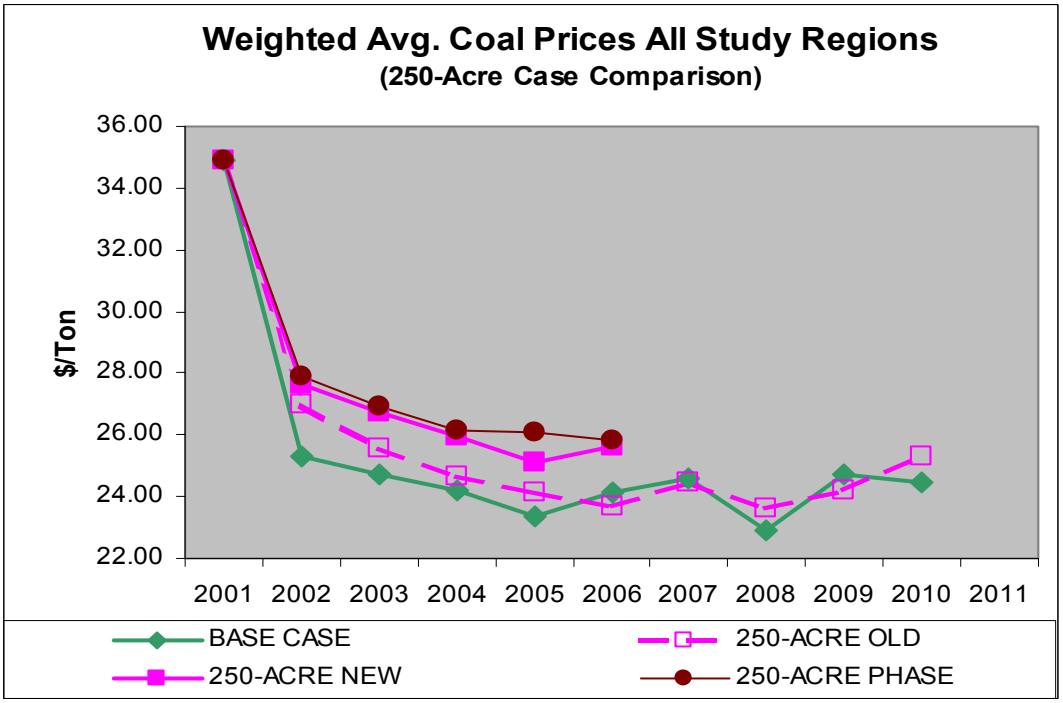


Figure 6



In general for most years, the "New" case prices in both sets of graphs gain approximately $2.00 per ton over the unrestricted Base Case. This compares to the typical "less than a dollar" differentials of the "Old" cases. In other words, price impacts have more than doubled in most years using the new model inputs of this study.

A dollar or two shift may not appear significant, given normal fluctuations in the Central Appalachian coal markets. The key is that a sustainable, systemic couple of dollars occurring at the point where demand crosses the cost curve can result in large production tonnage impacts. Figure 2, the generalized mine cost curve, illustrates that the middle portion of the curve is relatively "flat." Only a small change in the vertical value of dollars per ton at this point pushes substantial production above the market-clearing price for economical mining operations. Even when valley fill restrictions raise the curve and make it somewhat steeper, it is still flat enough in the first several years to see this phenomenon of smaller price increments associated with larger tonnage decreases.

However, if the curve is shortened year after year and additional low-cost reserves are unavailable to replenish the curve, then eventually demand crosses the curve nearer to its right-hand edge where it is much steeper and mining becomes uneconomical. This appears to occur in Figure 5 (the 75-acre comparisons) in the year 2011. As mentioned earlier, the model indicates that replacement reserves are nearing exhaustion by this last year of the runs. It is not so much that the area is running totally out of coal – There is still plenty of it in the ground. But the area is running out of economic coal. There is insufficient coal that can be mined at the $24-$26 level necessary to be competitive, even at zero cash margin.

IV. Conclusions

In summary, the following findings were obtained in this sensitivity study:

- The new realistic inputs cause a larger impact of valley fill restrictions than that observed in the prior study. This new impact reaches roughly 20% of total area production, even under the assumption that deep mines and their associated wash plants are unaffected. This impact is similar to, or below, the most restrictive 35-Acre Case of the previous study.

- Surprisingly, the 75 acre and 250 acre "New" cases show impacts of similar magnitude, primarily due to surface mine costs in both cases rising high enough to cross a threshold where new surface capacity is basically uneconomic to develop.

- Topography differences between southern West Virginia and eastern Kentucky are large enough that a valley fill watershed limit of 250 acres falls much more heavily on West Virginia. As that limit drops below about 100-acre watersheds, significant numbers of eastern Kentucky surface mines are also affected, but by a

lesser amount so that overall impacts are still predominantly located in West Virginia.

- Under the assumption that both existing and new deep mines are totally unaffected by valley fill restrictions, a very large amount of new deep capacity continues to come on year-by-year in the "New" modeling runs (as it does in the Base Case). The total new deep mine capacity across 10 years in the "New" 75 acre case exceeds 500 million tons beyond that existing today. Since new deep mines often require new wash plants with new valley fills, the assumption of "no deep mining impacts" is a very critical and pivotal assumption. In fact, the results of these economic studies are unreliable if deep mines will be affected.

- Weighted average coal price for the total study area in the "New" runs is generally $2.00 per ton higher than the pre-lawsuit Base Case, compared to the previous study's result of generally less than a dollar over Base Case. However, in the last year of the full 10-year "New" 75-acre case, there is a significant upswing in coal prices, indicating the likelihood that the reserves available to replace reduced tonnage are running out.

- A definite "reluctance to invest" is developing in the study area due to uncertainty and the perception of a hostile regulatory environment. However, raising the required ROI for new investment to 20% showed only marginal impact in the 250-acre scenarios. Increased ROI did outweigh the "3-year phase-in" of restrictions, causing the "250-Acre Phase" case tonnage to fall below the "250-Acre New" levels even in the first three years of phase-in.

Table A-1

Total Tons - Surface and Deep Mines Combined
Production Tons (000)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	37,850	37,112	36,823	33,002	31,422	32,007	33,767	35,551	31,630	26,355	
250-ACRE OLD	37,850	36,193	36,774	33,701	31,964	30,886	29,025	29,686	31,040	25,977	
250-ACRE NEW	37,850	35,914	34,876	33,122	31,512	30,637					
250-ACRE PHASE	37,850	36,065	35,027	33,013	32,197	30,929					
75-ACRE OLD	37,850	35,210	34,894	31,764	29,911	26,389	26,460	25,917	27,287	23,130	
75-ACRE NEW	37,850	36,637	34,848	33,166	31,524	30,471	29,056	29,483	30,190	28,538	26,264

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	49,100	46,844	46,074	46,599	41,518	33,638	35,576	35,765	27,881	27,768	
250-ACRE OLD	49,100	42,903	42,522	42,398	43,787	34,633	31,040	33,043	27,504	23,835	
250-ACRE NEW	49,100	45,180	46,092	48,356	45,080	32,806					
250-ACRE PHASE	49,100	45,180	45,689	47,683	46,759	32,242					
75-ACRE OLD	49,100	42,746	42,880	43,419	42,577	36,946	32,564	30,616	24,684	26,238	
75-ACRE NEW	49,100	45,771	46,795	49,201	44,510	31,826	33,026	32,004	26,019	27,728	24,161

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	1,690	1,575	1,407	1,406	1,114	1,035	1,023	993	1,104	1,106	
250-ACRE OLD	1,690	1,708	1,552	1,357	1,084	825	999	1,003	1,134	1,136	
250-ACRE NEW	1,690	1,690	1,670	1,529	1,136	1,087					
250-ACRE PHASE	1,690	1,690	1,670	1,529	1,136	1,066					
75-ACRE OLD	1,690	1,708	1,675	1,562	1,073	1,005	993	1,124	1,146	1,186	
75-ACRE NEW	1,690	1,690	1,680	1,436	986	986	1,097	986	1,117	1,087	996

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	90	120	50	0	0	0	0	0	40	41	
250-ACRE OLD	90	81	90	0	0	0	0	0	40	41	
250-ACRE NEW	90	80	40	40	40	10					
250-ACRE PHASE	90	80	40	40	40	10					
75-ACRE OLD	90	81	30	0	0	0	0	0	40	41	
75-ACRE NEW	90	80	40	40	40	10	0	0	40	40	50

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	31,460	29,662	30,447	30,018	26,772	32,447	21,555	16,371	13,869	18,263	
250-ACRE OLD	31,460	30,761	30,520	27,994	23,996	28,024	32,083	16,982	15,033	11,166	
250-ACRE NEW	31,460	24,259	20,831	19,938	20,039	16,862					
250-ACRE PHASE	31,460	23,295	20,607	19,467	15,242	14,502					
75-ACRE OLD	31,460	28,545	25,300	24,905	23,585	27,747	31,807	19,847	13,850	10,130	
75-ACRE NEW	31,460	24,692	20,377	18,117	14,198	10,120	9,591	9,594	7,812	8,058	10,469

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	890	658	679	699	720	740	761	782	1,004	1,026	
250-ACRE OLD	890	864	679	699	720	740	761	782	1,004	1,026	
250-ACRE NEW	890	847	847	645	645	645					
250-ACRE PHASE	890	847	847	645	786	645					
75-ACRE OLD	890	864	823	699	720	740	761	782	1,004	1,026	
75-ACRE NEW	890	847	847	786	645	645	646	787	847	845	896

Table A-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	35,080	39,019	42,631	44,639	46,765	48,241	47,147	44,586	40,898	41,454	
250-ACRE OLD	35,080	35,767	38,943	43,151	45,479	47,120	46,842	43,016	42,515	41,380	
250-ACRE NEW	35,080	35,149	37,973	41,392	45,101	48,831					
250-ACRE PHASE	35,080	35,149	37,973	41,392	43,121	44,855					
75-ACRE OLD	35,080	35,308	38,945	43,244	47,417	49,297	49,118	44,566	43,851	42,943	
75-ACRE NEW	35,080	35,149	38,074	41,392	45,101	48,831	49,732	47,806	44,069	39,926	44,660

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	5,750	5,413	4,431	1,849	1,477	1,117	1,127	1,064	544	554	
250-ACRE OLD	5,750	5,238	3,211	1,159	838	788	788	685	185	185	
250-ACRE NEW	5,750	4,610	2,574	663	352	302					
250-ACRE PHASE	5,750	5,292	3,731	1,476	773	403					
75-ACRE OLD	5,750	5,238	3,703	1,882	1,530	1,190	1,221	1,252	1,283	1,314	
75-ACRE NEW	5,750	4,004	2,605	743	342	302	308	158	308	308	348

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	61,190	62,379	55,381	58,923	66,682	50,323	46,895	56,022	50,730	46,768	
250-ACRE OLD	61,190	58,800	53,326	51,634	51,662	54,304	38,060	42,529	42,354	46,852	
250-ACRE NEW	61,190	57,515	48,722	51,006	43,514	38,411					
250-ACRE PHASE	61,190	53,179	44,181	45,899	34,685	33,758					
75-ACRE OLD	61,190	55,018	47,253	43,721	51,096	40,508	52,699	39,828	41,437	41,014	
75-ACRE NEW	61,190	44,657	39,086	41,078	38,426	38,833	44,940	39,597	38,630	31,195	12,208

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	134,370	137,131	133,568	136,128	142,415	132,868	117,484	118,824	107,044	108,066	
250-ACRE OLD	134,370	131,429	126,678	124,638	122,695	130,977	118,534	103,993	101,090	100,608	
250-ACRE NEW	134,370	122,379	110,946	113,643	109,651	105,051					
250-ACRE PHASE	134,370	117,762	107,339	108,878	94,607	94,162					
75-ACRE OLD	134,370	124,971	116,024	114,451	124,348	119,482	135,606	106,274	101,424	96,426	
75-ACRE NEW	134,370	109,349	100,988	102,115	98,712	98,731	105,217	97,941	91,666	80,332	68,580

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	88,730	85,651	84,353	81,008	74,053	66,680	70,367	72,310	60,655	55,270	
250-ACRE OLD	88,730	80,885	80,938	77,456	76,835	66,343	61,064	63,732	59,718	50,989	
250-ACRE NEW	88,730	82,865	82,678	83,047	77,769	64,540					
250-ACRE PHASE	88,730	83,016	82,427	82,265	80,132	64,247					
75-ACRE OLD	88,730	79,745	79,479	76,745	73,561	64,340	60,017	57,656	53,157	50,595	
75-ACRE NEW	88,730	84,179	83,363	83,843	77,061	63,293	63,178	62,473	57,365	57,392	51,472

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	27,200	28,032	29,777	28,516	23,013	23,929	25,132	23,123	22,491	23,071	
250-ACRE OLD	27,200	26,463	27,643	29,980	27,182	23,020	24,702	23,818	22,174	22,729	
250-ACRE NEW	27,200	26,395	27,666	29,163	26,932	23,103					
250-ACRE PHASE	27,200	26,395	27,666	29,375	27,215	22,921					
75-ACRE OLD	27,200	26,802	28,498	30,141	26,690	23,551	25,090	24,269	21,735	22,367	
75-ACRE NEW	27,200	26,758	27,837	29,737	27,081	22,710	25,970	26,307	23,293	23,237	23,722

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	250,300	250,814	247,698	245,651	239,481	223,477	212,983	214,257	190,191	186,407	
250-ACRE OLD	250,300	238,777	235,258	232,074	226,711	220,340	204,300	191,543	182,983	174,326	
250-ACRE NEW	250,300	231,640	221,291	225,852	214,352	192,693					
250-ACRE PHASE	250,300	227,173	217,431	220,518	201,954	181,330					
75-ACRE OLD	250,300	231,518	224,000	221,338	224,598	207,374	220,713	188,199	176,315	169,388	
75-ACRE NEW	250,300	220,286	212,188	215,695	202,853	184,734	194,365	186,720	172,324	160,960	143,774

Table A-2

Total Tons - Surface Mines Only
Production Tons (000)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	17,410	19,041	18,258	14,578	14,078	13,659	13,740	12,587	10,910	9,103	
250-ACRE OLD	17,410	16,935	17,523	14,972	13,457	13,230	11,498	9,649	8,275	7,339	
250-ACRE NEW	17,410	16,850	15,701	15,190	14,322	13,680					
250-ACRE PHASE	17,410	17,001	15,761	15,200	14,372	13,740					
75-ACRE OLD	17,410	15,865	15,378	13,034	10,100	7,720	6,821	6,104	4,996	3,830	
75-ACRE NEW	17,410	16,940	15,360	15,073	13,770	13,277	12,076	9,693	8,505	7,032	7,515

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	19,470	19,130	16,819	13,982	13,544	12,698	12,080	13,024	11,277	10,283	
250-ACRE OLD	19,470	15,784	14,819	12,796	12,664	10,218	9,427	8,397	7,663	7,606	
250-ACRE NEW	19,470	18,289	16,413	15,129	14,253	11,923					
250-ACRE PHASE	19,470	18,289	16,169	14,919	14,615	10,988					
75-ACRE OLD	19,470	15,576	14,336	12,935	9,617	9,746	8,535	8,187	8,435	8,031	
75-ACRE NEW	19,470	18,206	16,522	14,978	12,755	10,693	10,601	10,100	9,942	8,298	9,275

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	1,020	819	644	634	331	221	205	205	336	338	
250-ACRE OLD	1,020	952	788	603	300	30	201	205	336	338	
250-ACRE NEW	1,020	946	926	784	391	342					
250-ACRE PHASE	1,020	946	926	784	391	322					
75-ACRE OLD	1,020	952	901	778	300	201	205	316	338	409	
75-ACRE NEW	1,020	946	926	681	231	231	342	231	362	362	433

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	80	120	50	0	0	0	0	0	40	41	
250-ACRE OLD	80	81	90	0	0	0	0	0	40	41	
250-ACRE NEW	80	80	40	40	40	10					
250-ACRE PHASE	80	80	40	40	40	10					
75-ACRE OLD	80	81	30	0	0	0	0	0	40	41	
75-ACRE NEW	80	80	40	40	40	10	0	0	40	40	40

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	23,230	22,290	22,726	21,868	21,088	27,432	16,575	12,646	11,090	15,559	
250-ACRE OLD	23,230	23,585	23,035	20,478	16,634	23,282	27,092	13,313	11,903	8,232	
250-ACRE NEW	23,230	17,183	13,465	12,144	11,731	12,182					
250-ACRE PHASE	23,230	16,220	12,412	10,066	9,860	9,820					
75-ACRE OLD	23,230	21,369	17,753	16,854	16,223	22,461	26,814	15,742	10,375	7,185	
75-ACRE NEW	23,230	17,612	13,011	10,323	5,890	5,390	5,244	4,624	5,107	5,555	7,837

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	630	391	401	411	422	432	442	453	664	677	
250-ACRE OLD	630	596	401	411	422	432	442	453	664	677	
250-ACRE NEW	630	585	585	383	383	383					
250-ACRE PHASE	630	585	585	383	524	383					
75-ACRE OLD	630	596	545	411	422	432	442	453	664	677	
75-ACRE NEW	630	585	585	524	383	383	383	524	585	583	634

Table A-2 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	1,480	1,175	517	144	72	254	277	216	448	471	
250-ACRE OLD	1,480	1,293	296	215	134	134	275	215	235	466	
250-ACRE NEW	1,480	1,351	533	282	282	282					
250-ACRE PHASE	1,480	1,351	533	282	282	282					
75-ACRE OLD	1,480	833	298	308	93	274	134	214	277	468	
75-ACRE NEW	1,480	1,351	633	282	282	282	282	252	464	463	604

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	1,210	1,223	1,078	328	339	349	359	370	380	390	
250-ACRE OLD	1,210	1,048	191	21	21	21	21	21	21	21	
250-ACRE NEW	1,210	1,202	362	302	302	302					
250-ACRE PHASE	1,210	1,117	392	242	242	242					
75-ACRE OLD	1,210	1,048	338	328	339	349	359	370	380	390	
75-ACRE NEW	1,210	592	392	382	292	302	302	152	302	302	342

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	27,730	30,668	27,159	29,650	32,787	17,362	12,031	17,377	17,141	15,495	
250-ACRE OLD	27,730	26,780	24,962	24,608	23,805	21,123	6,377	9,971	10,121	10,806	
250-ACRE NEW	27,730	25,324	18,830	17,098	10,377	9,696					
250-ACRE PHASE	27,730	20,989	10,489	8,199	8,209	7,942					
75-ACRE OLD	27,730	22,392	18,259	16,047	20,425	6,085	9,631	8,604	7,259	5,092	
75-ACRE NEW	27,730	12,446	9,537	7,515	6,749	6,343	5,523	4,613	5,070	5,007	4,789

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	54,280	55,747	51,882	52,401	54,708	45,828	29,684	31,061	29,723	32,592	
250-ACRE OLD	54,280	53,303	48,885	45,734	41,015	44,992	34,207	23,971	22,944	20,201	
250-ACRE NEW	54,280	45,645	33,774	30,209	23,075	22,846					
250-ACRE PHASE	54,280	40,261	24,410	19,172	19,117	18,669					
75-ACRE OLD	54,280	46,239	37,193	33,949	37,501	29,601	37,380	25,381	18,954	13,812	
75-ACRE NEW	54,280	32,585	24,159	19,026	13,596	12,700	11,734	10,166	11,528	11,911	14,205

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	37,980	39,110	35,770	29,193	27,952	26,578	26,025	25,815	22,563	19,765	
250-ACRE OLD	37,980	33,752	33,220	28,371	26,421	23,478	21,127	18,251	16,314	15,325	
250-ACRE NEW	37,980	36,166	33,079	31,143	29,006	25,955					
250-ACRE PHASE	37,980	36,316	32,896	30,943	29,419	25,060					
75-ACRE OLD	37,980	32,474	30,645	26,746	20,018	17,667	15,560	14,606	13,809	12,311	
75-ACRE NEW	37,980	36,172	32,848	30,772	26,797	24,212	23,019	20,025	18,849	15,732	17,263

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	8,330	7,737	7,855	7,412	7,390	7,616	7,642	6,562	7,649	7,185	
250-ACRE OLD	8,330	8,043	7,851	7,964	7,488	7,451	7,375	6,436	6,912	6,856	
250-ACRE NEW	8,330	8,229	7,998	7,675	7,534	7,564					
250-ACRE PHASE	8,330	8,229	7,998	7,806	7,856	7,564					
75-ACRE OLD	8,330	8,341	8,150	7,731	6,453	7,109	6,424	6,201	5,410	4,753	
75-ACRE NEW	8,330	8,289	7,998	7,866	7,582	7,111	6,840	6,465	6,699	6,236	5,469

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	100,590	102,594	95,507	89,006	90,050	80,022	63,350	63,438	59,935	59,542	
250-ACRE OLD	100,590	95,098	89,956	82,068	74,924	75,920	62,709	48,658	46,170	42,382	
250-ACRE NEW	100,590	90,040	74,851	69,027	59,616	56,365					
250-ACRE PHASE	100,590	84,806	65,303	57,921	56,392	51,292					
75-ACRE OLD	100,590	87,054	75,988	68,426	63,972	54,377	59,364	46,188	38,173	30,876	
75-ACRE NEW	100,590	77,046	65,004	57,664	47,975	44,023	41,593	36,656	37,076	33,879	36,937

Table A-3

Total Tons - Deep Mines Only
Production Tons (000)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	20,440	18,071	18,565	18,425	17,344	18,349	20,027	22,965	20,720	17,252	
250-ACRE OLD	20,440	19,258	19,251	18,729	18,507	17,656	17,527	20,037	22,765	18,637	
250-ACRE NEW	20,440	19,064	19,175	17,932	17,191	16,957					
250-ACRE PHASE	20,440	19,064	19,266	17,813	17,824	17,188					
75-ACRE OLD	20,440	19,345	19,516	18,731	19,811	18,670	19,639	19,813	22,292	19,300	
75-ACRE NEW	20,440	19,698	19,487	18,093	17,754	17,194	16,979	19,790	21,685	21,506	18,749

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	29,630	27,714	29,255	32,617	27,973	20,940	23,497	22,741	16,604	17,486	
250-ACRE OLD	29,630	27,119	27,703	29,602	31,123	24,415	21,613	24,646	19,841	16,229	
250-ACRE NEW	29,630	26,891	29,679	33,228	30,827	20,883					
250-ACRE PHASE	29,630	26,891	29,520	32,764	32,144	21,255					
75-ACRE OLD	29,630	27,170	28,544	30,485	32,960	27,200	24,030	22,429	16,249	18,208	
75-ACRE NEW	29,630	27,565	30,273	34,223	31,755	21,133	22,426	21,904	16,077	19,430	14,886

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	670	756	762	773	783	813	819	788	768	768	
250-ACRE OLD	670	757	763	753	784	794	798	798	798	798	
250-ACRE NEW	670	745	745	745	745	745					
250-ACRE PHASE	670	745	745	745	745	745					
75-ACRE OLD	670	757	773	784	773	803	788	808	808	778	
75-ACRE NEW	670	745	755	755	755	755	755	755	755	724	563

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	10	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	10	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	10	0	0	0	0	0					
250-ACRE PHASE	10	0	0	0	0	0					
75-ACRE OLD	10	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	10	0	0	0	0	0	0	0	0	0	10

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	8,230	7,372	7,721	8,150	5,684	5,015	4,980	3,726	2,779	2,704	
250-ACRE OLD	8,230	7,176	7,484	7,516	7,362	4,741	4,990	3,670	3,130	2,934	
250-ACRE NEW	8,230	7,075	7,366	7,794	8,308	4,680					
250-ACRE PHASE	8,230	7,075	8,196	9,401	5,382	4,682					
75-ACRE OLD	8,230	7,176	7,547	8,051	7,362	5,286	4,993	4,104	3,475	2,945	
75-ACRE NEW	8,230	7,080	7,366	7,794	8,308	4,730	4,347	4,970	2,705	2,502	2,632

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	260	267	278	288	298	308	319	329	339	349	
250-ACRE OLD	260	267	278	288	298	308	319	329	339	349	
250-ACRE NEW	260	262	262	262	262	262					
250-ACRE PHASE	260	262	262	262	262	262					
75-ACRE OLD	260	267	278	288	298	308	319	329	339	349	
75-ACRE NEW	260	262	262	262	262	262	262	262	262	262	262

Table A-3 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	33,600	37,844	42,114	44,496	46,693	47,987	46,869	44,370	40,451	40,983	
250-ACRE OLD	33,600	34,474	38,647	42,936	45,345	46,987	46,567	42,801	42,281	40,914	
250-ACRE NEW	33,600	33,798	37,440	41,109	44,819	48,548					
250-ACRE PHASE	33,600	33,798	37,440	41,109	42,839	44,572					
75-ACRE OLD	33,600	34,474	38,647	42,936	47,325	49,022	48,984	44,352	43,574	42,475	
75-ACRE NEW	33,600	33,798	37,440	41,109	44,819	48,548	49,449	47,554	43,605	39,464	44,057

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	4,540	4,189	3,353	1,521	1,138	768	768	694	164	164	
250-ACRE OLD	4,540	4,189	3,020	1,139	818	768	768	664	164	164	
250-ACRE NEW	4,540	3,408	2,212	361	50	0					
250-ACRE PHASE	4,540	4,175	3,339	1,234	531	161					
75-ACRE OLD	4,540	4,189	3,365	1,553	1,191	841	862	883	903	924	
75-ACRE NEW	4,540	3,412	2,212	361	50	0	6	6	6	6	6

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	33,460	31,711	28,221	29,273	33,894	32,961	34,864	38,644	33,589	31,274	
250-ACRE OLD	33,460	32,020	28,364	27,026	27,857	33,181	31,683	32,558	32,232	36,046	
250-ACRE NEW	33,460	32,191	29,892	33,908	33,137	28,715					
250-ACRE PHASE	33,460	32,191	33,692	37,700	26,476	25,815					
75-ACRE OLD	33,460	32,625	28,995	27,674	30,671	34,423	43,068	31,225	34,179	35,922	
75-ACRE NEW	33,460	32,211	29,549	33,563	31,678	32,490	39,417	34,984	33,560	26,188	7,419

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	80,090	81,384	81,687	83,727	87,707	87,040	87,800	87,763	77,321	75,474	
250-ACRE OLD	80,090	78,127	77,793	78,905	81,680	85,985	84,327	80,022	78,147	80,407	
250-ACRE NEW	80,090	76,734	77,172	83,434	86,576	82,205					
250-ACRE PHASE	80,090	77,501	82,929	89,706	75,490	75,493					
75-ACRE OLD	80,090	78,732	78,831	80,502	86,847	89,881	98,226	80,893	82,470	82,614	
75-ACRE NEW	80,090	76,764	76,829	83,089	85,117	86,030	93,482	87,775	80,138	68,421	54,376

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	50,750	46,541	48,583	51,814	46,101	40,102	44,342	46,494	38,092	35,505	
250-ACRE OLD	50,750	47,133	47,718	49,085	50,414	42,865	39,938	45,480	43,404	35,664	
250-ACRE NEW	50,750	46,699	49,599	51,904	48,762	38,584					
250-ACRE PHASE	50,750	46,699	49,531	51,321	50,713	39,187					
75-ACRE OLD	50,750	47,271	48,833	49,999	53,543	46,673	44,457	43,050	39,348	38,285	
75-ACRE NEW	50,750	48,007	50,515	53,071	50,263	39,082	40,159	42,448	38,516	41,660	34,209

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	18,870	20,295	21,922	21,104	15,624	16,314	17,491	16,561	14,842	15,886	
250-ACRE OLD	18,870	18,419	19,792	22,016	19,695	15,569	17,328	17,382	15,262	15,873	
250-ACRE NEW	18,870	18,167	19,669	21,488	19,398	15,539					
250-ACRE PHASE	18,870	18,167	19,669	21,570	19,359	15,358					
75-ACRE OLD	18,870	18,461	20,347	22,411	20,237	16,442	18,667	18,068	16,325	17,613	
75-ACRE NEW	18,870	18,468	19,840	21,871	19,499	15,599	19,130	19,841	16,593	17,000	18,253

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	149,710	148,220	152,191	156,645	149,431	143,455	149,633	150,819	130,256	126,865	
250-ACRE OLD	149,710	143,679	145,302	150,005	151,788	144,420	141,592	142,885	136,813	131,945	
250-ACRE NEW	149,710	141,600	146,440	156,825	154,736	136,328					
250-ACRE PHASE	149,710	142,367	152,128	162,597	145,562	130,038					
75-ACRE OLD	149,710	144,464	148,012	152,912	160,627	152,996	161,349	142,011	138,143	138,512	
75-ACRE NEW	149,710	143,240	147,184	158,031	154,878	140,711	152,772	150,065	135,248	127,082	106,837

Table B-1

Direct Coal Employment - (Number of Employees)
Base Case

Region	Mining Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
KY_1	Deep	1819	1608	1652	1640	1544	1633	1782	2044	1844	1535
KY_1	Surface	972	975	942	844	819	794	799	731	632	526
KY_1 Total		**2791**	**2583**	**2595**	**2484**	**2363**	**2427**	**2582**	**2775**	**2476**	**2061**
KY_2	Deep	2609	2467	2604	2903	2490	1864	2091	2024	1478	1556
KY_2	Surface	1102	1044	941	790	767	716	664	704	634	580
KY_2 Total		**3711**	**3511**	**3545**	**3693**	**3256**	**2580**	**2755**	**2728**	**2112**	**2136**
KY_3	Deep	60	67	68	69	70	72	73	70	68	68
KY_3	Surface	60	48	38	37	20	13	12	12	20	20
KY_3 Total		**120**	**116**	**106**	**106**	**89**	**85**	**85**	**82**	**88**	**88**
KY_4	Deep	1	0	0	0	0	0	0	0	0	0
KY_4	Surface	5	8	3	0	0	0	0	0	2	2
KY_4 Total		**6**	**8**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
WV_C	Deep	724	656	687	725	506	438	434	329	238	231
WV_C	Surface	1322	1266	1292	1244	1216	1596	966	735	643	907
WV_C Total		**2046**	**1922**	**1980**	**1969**	**1722**	**2034**	**1400**	**1063**	**881**	**1138**
WV_E	Deep	23	24	25	26	27	27	28	29	30	31
WV_E	Surface	31	17	17	18	18	19	19	20	32	32
WV_E Total		**55**	**41**	**42**	**44**	**45**	**46**	**47**	**49**	**62**	**63**
WV_N	Deep	2410	2701	2996	3162	3311	3405	3346	3191	2903	2941
WV_N	Surface	69	51	24	8	4	15	16	13	26	28
WV_N Total		**2479**	**2752**	**3020**	**3169**	**3316**	**3420**	**3362**	**3204**	**2930**	**2968**
WV_S	Deep	404	373	298	135	101	68	68	62	15	15
WV_S	Surface	71	72	64	19	20	21	21	22	22	23
WV_S Total		**475**	**445**	**362**	**155**	**121**	**89**	**90**	**84**	**37**	**38**
WV_SW	Deep	2732	2612	2374	2448	2823	2755	3013	3379	2982	2776
WV_SW	Surface	1405	1497	1404	1567	1779	955	669	908	894	848
WV_SW Total		**4137**	**4109**	**3778**	**4015**	**4601**	**3710**	**3682**	**4288**	**3877**	**3624**
ALLEKY	Deep	4489	4142	4324	4611	4103	3569	3946	4138	3390	3160
ALLEKY	Surface	2139	2075	1925	1671	1605	1524	1475	1447	1288	1128
ALL E. KY Total		**6627**	**6217**	**6249**	**6283**	**5708**	**5093**	**5422**	**5585**	**4679**	**4288**
ALLWV	Deep	6293	6366	6380	6495	6768	6693	6890	6990	6169	5994
ALLWV	Surface	2899	2903	2802	2856	3037	2606	1692	1697	1618	1838
ALLWV Total		**9192**	**9269**	**9182**	**9352**	**9805**	**9299**	**8582**	**8687**	**7787**	**7832**
ALLVA	Deep	1538	1658	1795	1719	1227	1284	1384	1294	1136	1224
ALLVA	Surface	488	455	463	437	436	449	451	387	451	424
ALLVA Total		**2026**	**2113**	**2259**	**2156**	**1663**	**1733**	**1835**	**1681**	**1587**	**1648**
ALLREG	Deep	12319	12166	12499	12825	12098	11547	12221	12422	10695	10378
ALLREG	Surface	5526	5434	5190	4965	5078	4579	3618	3531	3358	3390
ALLREG Total		**17845**	**17600**	**17689**	**17790**	**17176**	**16125**	**15838**	**15952**	**14052**	**13767**

Table B-2

Direct Coal Employment - (Number of Employees)
250-Acre Old Case

Region	Mining Typ	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
KY_1	Deep	1819	1714	1713	1667	1647	1571	1560	1783	2026	1659
KY_1	Surface	972	944	895	840	779	770	667	558	482	433
KY_1 Total		**2791**	**2657**	**2608**	**2507**	**2427**	**2341**	**2227**	**2342**	**2508**	**2092**
KY_2	Deep	2609	2414	2466	2635	2770	2173	1924	2193	1766	1444
KY_2	Surface	1102	887	829	747	743	603	556	495	452	449
KY_2 Total		**3711**	**3300**	**3295**	**3382**	**3513**	**2776**	**2480**	**2689**	**2218**	**1893**
KY_3	Deep	60	67	68	67	70	71	71	71	71	71
KY_3	Surface	60	56	47	36	18	2	12	12	20	20
KY_3 Total		**120**	**124**	**114**	**103**	**87**	**72**	**83**	**83**	**91**	**91**
KY_4	Deep	1	0	0	0	0	0	0	0	0	0
KY_4	Surface	5	5	6	0	0	0	0	0	2	2
KY_4 Total		**6**	**5**	**6**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
WV_C	Deep	724	630	658	669	655	422	435	324	275	251
WV_C	Surface	1322	1343	1311	1175	965	1358	1589	785	702	485
WV_C Total		**2046**	**1973**	**1969**	**1844**	**1621**	**1780**	**2024**	**1108**	**977**	**736**
WV_E	Deep	23	24	25	26	27	27	28	29	30	31
WV_E	Surface	31	29	17	18	18	19	19	20	32	32
WV_E Total		**55**	**53**	**42**	**44**	**45**	**46**	**47**	**49**	**62**	**63**
WV_N	Deep	2410	2471	2759	3054	3222	3337	3310	3069	3019	2921
WV_N	Surface	69	59	16	11	8	8	16	13	14	27
WV_N Total		**2479**	**2530**	**2775**	**3065**	**3230**	**3345**	**3326**	**3081**	**3033**	**2949**
WV_S	Deep	404	373	269	101	73	68	68	59	15	15
WV_S	Surface	71	62	11	1	1	1	1	1	1	1
WV_S Total		**475**	**435**	**280**	**103**	**74**	**70**	**70**	**60**	**16**	**16**
WV_SW	Deep	2732	2633	2381	2261	2321	2764	2682	2836	2865	3202
WV_SW	Surface	1405	1347	1265	1277	1282	1138	342	534	543	596
WV_SW Total		**4137**	**3980**	**3646**	**3537**	**3603**	**3902**	**3023**	**3370**	**3408**	**3798**
ALLEKY	Deep	4489	4195	4247	4369	4487	3815	3554	4048	3863	3174
ALLEKY	Surface	2139	1891	1776	1623	1540	1374	1235	1066	956	904
ALL E. KY Total		**6627**	**6086**	**6023**	**5991**	**6027**	**5189**	**4790**	**5114**	**4819**	**4078**
ALLWV	Deep	6293	6130	6091	6111	6297	6620	6523	6317	6203	6421
ALLWV	Surface	2899	2840	2621	2481	2275	2524	1968	1352	1292	1142
ALLWV Total		**9192**	**8970**	**8712**	**8592**	**8572**	**9144**	**8491**	**7669**	**7495**	**7563**
ALLVA	Deep	1538	1491	1606	1796	1586	1214	1366	1363	1169	1219
ALLVA	Surface	488	473	463	470	442	440	435	380	408	404
ALLVA Total		**2026**	**1964**	**2069**	**2266**	**2027**	**1654**	**1801**	**1743**	**1577**	**1623**
ALLREG	Deep	12319	11816	11944	12276	12370	11649	11444	11727	11236	10813
ALLREG	Surface	5526	5205	4861	4574	4257	4338	3638	2798	2656	2451
ALLREG Total		**17845**	**17021**	**16804**	**16849**	**16627**	**15986**	**15082**	**14525**	**13891**	**13264**

Table B-3

Direct Coal Employment - (Number of Employees)
250-Acre New Case

Region	Mining Type	2001	2002	2003	2004	2005	2006
KY_1	Deep	1819	1697	1707	1596	1530	1509
KY_1	Surface	972	939	872	842	792	760
KY_1 Total		**2791**	**2636**	**2578**	**2438**	**2322**	**2269**
KY_2	Deep	2609	2393	2641	2957	2744	1859
KY_2	Surface	1102	1032	921	849	799	667
KY_2 Total		**3711**	**3425**	**3562**	**3806**	**3543**	**2526**
KY_3	Deep	60	66	66	66	66	66
KY_3	Surface	60	56	55	46	23	20
KY_3 Total		**120**	**122**	**121**	**113**	**89**	**86**
KY_4	Deep	1	0	0	0	0	0
KY_4	Surface	5	5	3	3	3	1
KY_4 Total		**6**	**5**	**3**	**3**	**3**	**1**
WV_C	Deep	724	621	647	685	731	408
WV_C	Surface	1322	974	772	699	675	703
WV_C Total		**2046**	**1596**	**1419**	**1385**	**1406**	**1111**
WV_E	Deep	23	23	23	23	23	23
WV_E	Surface	31	29	29	17	17	17
WV_E Total		**55**	**52**	**52**	**40**	**40**	**40**
WV_N	Deep	2410	2423	2672	2923	3177	3433
WV_N	Surface	69	62	26	16	16	16
WV_N Total		**2479**	**2484**	**2698**	**2939**	**3194**	**3449**
WV_S	Deep	404	303	197	32	4	0
WV_S	Surface	71	71	21	18	18	18
WV_S Total		**475**	**374**	**218**	**50**	**22**	**18**
WV_SW	Deep	2732	2645	2481	2776	2771	2472
WV_SW	Surface	1405	1309	1038	946	578	538
WV_SW Total		**4137**	**3954**	**3519**	**3722**	**3349**	**3010**
ALLEKY	Deep	4489	4156	4414	4619	4340	3434
ALLEKY	Surface	2139	2032	1850	1740	1616	1448
ALL E. KY Total		**6627**	**6188**	**6264**	**6360**	**5956**	**4882**
ALLWV	Deep	6293	6016	6020	6440	6708	6336
ALLWV	Surface	2899	2444	1886	1696	1304	1292
ALLWV Total		**9192**	**8460**	**7906**	**8136**	**8011**	**7628**
ALLVA	Deep	1538	1471	1601	1758	1568	1221
ALLVA	Surface	488	484	472	453	445	446
ALLVA Total		**2026**	**1956**	**2073**	**2211**	**2013**	**1667**
ALLREG	Deep	12319	11643	12035	12818	12616	10990
ALLREG	Surface	5526	4960	4208	3889	3365	3186
ALLREG Total		**17845**	**16603**	**16243**	**16707**	**15980**	**14176**

Table B-4

Direct Coal Employment - (Number of Employees)
250-Acre Phase-In Case

Region	Mining Type	2001	2002	2003	2004	2005	2006
KY_1	Deep	1819	1697	1715	1585	1586	1530
KY_1	Surface	972	948	875	843	795	763
KY_1 Total		**2791**	**2644**	**2590**	**2428**	**2381**	**2293**
KY_2	Deep	2609	2393	2627	2916	2861	1892
KY_2	Surface	1102	1032	907	837	820	612
KY_2 Total		**3711**	**3425**	**3534**	**3753**	**3681**	**2503**
KY_3	Deep	60	66	66	66	66	66
KY_3	Surface	60	56	55	46	23	19
KY_3 Total		**120**	**122**	**121**	**113**	**89**	**85**
KY_4	Deep	1	0	0	0	0	0
KY_4	Surface	5	5	3	3	3	1
KY_4 Total		**6**	**5**	**3**	**3**	**3**	**1**
WV_C	Deep	724	621	721	828	470	408
WV_C	Surface	1322	924	711	579	569	568
WV_C Total		**2046**	**1545**	**1432**	**1407**	**1040**	**976**
WV_E	Deep	23	23	23	23	23	23
WV_E	Surface	31	29	29	17	25	17
WV_E Total		**55**	**52**	**52**	**40**	**48**	**40**
WV_N	Deep	2410	2423	2672	2923	3043	3163
WV_N	Surface	69	62	26	16	16	16
WV_N Total		**2479**	**2484**	**2698**	**2939**	**3059**	**3179**
WV_S	Deep	404	372	297	110	47	14
WV_S	Surface	71	66	23	14	14	14
WV_S Total		**475**	**437**	**320**	**124**	**62**	**29**
WV_SW	Deep	2732	2645	2786	3074	2246	2208
WV_SW	Surface	1405	1070	573	454	454	439
WV_SW Total		**4137**	**3715**	**3359**	**3528**	**2700**	**2647**
ALLEKY	Deep	4489	4156	4408	4568	4513	3488
ALLEKY	Surface	2139	2040	1839	1729	1641	1395
ALL E. KY Total		**6627**	**6197**	**6247**	**6296**	**6154**	**4882**
ALLWV	Deep	6293	6084	6499	6959	5830	5816
ALLWV	Surface	2899	2150	1362	1080	1079	1053
ALLWV Total		**9192**	**8234**	**7861**	**8039**	**6909**	**6870**
ALLVA	Deep	1538	1471	1601	1766	1565	1204
ALLVA	Surface	488	484	472	461	464	446
VA Total		**2026**	**1956**	**2073**	**2226**	**2028**	**1651**
ALLREG	Deep	12319	11711	12508	13292	11908	10508
ALLREG	Surface	5526	4675	3673	3269	3183	2894
ALLREG Total		**17845**	**16386**	**16181**	**16561**	**15091**	**13403**

Table B-5

Direct Coal Employment - (Number of Employees)
75-Acre Old Case

Region	Mining Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
KY_1	Deep	1819	1722	1737	1667	1763	1662	1748	1763	1984	1718
KY_1	Surface	972	881	820	753	583	449	402	360	295	226
KY_1 Total		**2791**	**2602**	**2557**	**2420**	**2346**	**2111**	**2150**	**2123**	**2279**	**1944**
KY_2	Deep	2609	2418	2540	2713	2933	2421	2139	1996	1446	1620
KY_2	Surface	1102	878	816	760	566	575	504	483	498	474
KY_2 Total		**3711**	**3296**	**3357**	**3473**	**3500**	**2996**	**2642**	**2479**	**1944**	**2094**
KY_3	Deep	60	67	69	70	69	71	70	72	72	69
KY_3	Surface	60	56	53	46	18	12	12	19	20	24
KY_3 Total		**120**	**124**	**122**	**116**	**87**	**83**	**82**	**91**	**92**	**93**
KY_4	Deep	1	0	0	0	0	0	0	0	0	0
KY_4	Surface	5	5	2	0	0	0	0	0	2	2
KY_4 Total		**6**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
WV_C	Deep	724	630	663	707	655	461	437	356	299	252
WV_C	Surface	1322	1223	1029	977	934	1299	1563	918	601	412
WV_C Total		**2046**	**1853**	**1692**	**1684**	**1590**	**1760**	**2000**	**1273**	**900**	**664**
WV_E	Deep	23	24	25	26	27	27	28	29	30	31
WV_E	Surface	31	29	26	18	18	19	19	20	32	32
WV_E Total		**55**	**53**	**51**	**44**	**45**	**46**	**47**	**49**	**62**	**63**
WV_N	Deep	2410	2471	2759	3054	3356	3476	3476	3162	3093	3012
WV_N	Surface	69	42	16	16	5	16	8	13	16	28
WV_N Total		**2479**	**2513**	**2775**	**3071**	**3362**	**3492**	**3484**	**3174**	**3109**	**3040**
WV_S	Deep	404	373	299	138	106	75	77	79	80	82
WV_S	Surface	71	62	20	19	20	21	21	22	22	23
WV_S Total		**475**	**435**	**319**	**158**	**126**	**95**	**98**	**100**	**103**	**105**
WV_SW	Deep	2732	2681	2431	2318	2578	2875	3639	2779	3029	3184
WV_SW	Surface	1405	1134	936	866	1098	326	525	465	385	267
WV_SW Total		**4137**	**3815**	**3367**	**3183**	**3676**	**3201**	**4165**	**3244**	**3414**	**3451**
ALLEKY	Deep	4489	4207	4346	4450	4765	4154	3957	3831	3502	3407
ALLEKY	Surface	2139	1820	1691	1559	1167	1036	918	862	815	726
ALL E. KY Total		**6627**	**6027**	**6038**	**6009**	**5933**	**5190**	**4875**	**4693**	**4317**	**4134**
ALLWV	Deep	6293	6179	6176	6243	6722	6914	7658	6404	6531	6561
ALLWV	Surface	2899	2490	2027	1896	2077	1681	2137	1436	1056	763
ALLWV Total		**9192**	**8669**	**8204**	**8139**	**8798**	**8595**	**9795**	**7840**	**7588**	**7324**
ALLVA	Deep	1538	1495	1655	1832	1630	1288	1478	1420	1260	1370
ALLVA	Surface	488	492	481	456	381	419	379	366	319	280
ALLVA Total		**2026**	**1987**	**2136**	**2288**	**2011**	**1708**	**1857**	**1786**	**1579**	**1650**
ALLREG	Deep	12319	11880	12178	12525	13118	12356	13093	11656	11293	11338
ALLREG	Surface	5526	4802	4200	3911	3625	3136	3434	2664	2190	1769
ALLREG Total		**17845**	**16683**	**16377**	**16436**	**16742**	**15492**	**16527**	**14319**	**13483**	**13108**

Table B-6

Direct Coal Employment - (Number of Employees)
75-Acre New Case

Region	Mining Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY_1	Deep	1819	1753	1734	1610	1580	1530	1511	1761	1930	1914	1669
KY_1	Surface	972	945	852	836	760	746	687	558	490	414	443
KY_1 Total		**2791**	**2698**	**2586**	**2446**	**2340**	**2276**	**2198**	**2319**	**2420**	**2328**	**2112**
KY_2	Deep	2609	2453	2694	3046	2826	1881	1996	1949	1431	1729	1325
KY_2	Surface	1102	1027	927	842	712	600	595	565	556	458	516
KY_2 Total		**3711**	**3480**	**3622**	**3888**	**3538**	**2481**	**2591**	**2515**	**1986**	**2188**	**1841**
KY_3	Deep	60	66	67	67	67	67	67	67	67	64	50
KY_3	Surface	60	56	55	40	14	14	20	14	21	21	26
KY_3 Total		**120**	**122**	**122**	**107**	**81**	**81**	**87**	**81**	**89**	**86**	**76**
KY_4	Deep	1	0	0	0	0	0	0	0	0	0	1
KY_4	Surface	5	5	3	3	3	1	0	0	2	2	2
KY_4 Total		**6**	**5**	**3**	**3**	**3**	**1**	**0**	**0**	**2**	**2**	**3**
WV_C	Deep	724	621	647	685	731	412	378	433	232	214	225
WV_C	Surface	1322	992	747	585	328	298	291	256	275	301	436
WV_C Total		**2046**	**1613**	**1394**	**1270**	**1058**	**710**	**668**	**689**	**507**	**515**	**661**
WV_E	Deep	23	23	23	23	23	23	23	23	23	23	23
WV_E	Surface	31	29	29	25	17	17	17	25	29	29	32
WV_E Total		**55**	**52**	**52**	**48**	**40**	**40**	**40**	**48**	**52**	**52**	**55**
WV_N	Deep	2410	2423	2672	2923	3177	3433	3496	3384	3100	2809	3122
WV_N	Surface	69	62	32	16	16	16	16	15	27	27	36
WV_N Total		**2479**	**2484**	**2704**	**2939**	**3194**	**3449**	**3512**	**3399**	**3127**	**2836**	**3157**
WV_S	Deep	404	303	197	32	4	0	0	0	0	0	0
WV_S	Surface	71	35	23	23	17	18	18	9	18	18	20
WV_S Total		**475**	**338**	**220**	**55**	**22**	**18**	**18**	**9**	**18**	**18**	**20**
WV_SW	Deep	2732	2646	2455	2746	2648	2814	3350	3109	2980	2324	653
WV_SW	Surface	1405	695	541	438	394	370	321	268	295	291	278
WV_SW Total		**4137**	**3341**	**2996**	**3184**	**3042**	**3183**	**3671**	**3377**	**3274**	**2614**	**932**
ALLEKY	Deep	4489	4273	4496	4723	4473	3478	3574	3778	3428	3708	3045
ALLEKY	Surface	2139	2032	1836	1721	1488	1360	1302	1137	1069	896	987
ALL E. KY Total		**6627**	**6305**	**6332**	**6444**	**5961**	**4838**	**4876**	**4915**	**4497**	**4603**	**4032**
ALLWV	Deep	6293	6016	5994	6410	6584	6683	7247	6949	6335	5369	4023
ALLWV	Surface	2899	1812	1372	1087	772	718	662	573	643	666	802
ALLWV Total		**9192**	**7829**	**7366**	**7497**	**7355**	**7401**	**7910**	**7522**	**6978**	**6035**	**4825**
ALLVA	Deep	1538	1498	1616	1793	1577	1226	1536	1595	1305	1340	1451
ALLVA	Surface	488	488	472	464	447	420	404	381	395	368	323
ALLVA Total		**2026**	**1986**	**2088**	**2257**	**2024**	**1645**	**1939**	**1976**	**1700**	**1708**	**1774**
ALLREG	Deep	12319	11787	12106	12926	12634	11387	12357	12322	11068	10417	8519
ALLREG	Surface	5526	4333	3680	3272	2706	2497	2368	2091	2108	1929	2111
ALLREG Total		**17845**	**16120**	**15786**	**16198**	**15341**	**13884**	**14725**	**14413**	**13176**	**12347**	**10630**

Table C-1

Mine Capacity Capital Expenditures
Million Dollars

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	0.00	33.33	13.01	0.18	0.17	0.43	31.01	70.50	0.00	0.00	
250-ACRE OLD	0.00	5.09	27.10	0.00	3.77	0.00	0.00	51.85	47.09	0.00	
250-ACRE NEW	0.00	1.26	7.06	0.00	0.00	0.00					
250-ACRE PHASE	0.00	1.26	7.06	0.00	0.00	0.00					
75-ACRE OLD	0.00	2.72	16.12	0.00	31.42	0.00	31.30	1.63	31.66	0.00	
75-ACRE NEW	0.00	0.54	7.06	0.00	0.00	0.00	0.00	67.88	14.76	0.00	0.42

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	0.00	67.08	42.89	71.18	0.70	0.70	53.53	21.67	0.00	21.12	
250-ACRE OLD	0.00	12.60	34.51	54.21	38.50	0.00	0.00	68.61	0.00	0.00	
250-ACRE NEW	0.00	4.94	60.97	82.60	0.17	0.17					
250-ACRE PHASE	0.00	4.94	56.58	58.00	0.17	0.17					
75-ACRE OLD	0.00	12.30	33.19	54.52	80.17	0.00	0.00	0.00	1.08	39.18	
75-ACRE NEW	0.00	3.78	60.97	82.60	0.17	0.17	15.36	2.62	0.17	57.78	0.17

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	0.00	0.79	0.11	0.21	0.20	0.21	0.10	0.00	0.00	0.04	
250-ACRE OLD	0.00	0.39	0.13	0.21	0.20	0.21	0.08	0.05	0.00	0.04	
250-ACRE NEW	0.00	0.09	0.00	0.00	0.00	0.00					
250-ACRE PHASE	0.00	0.09	0.00	0.00	0.00	0.00					
75-ACRE OLD	0.00	0.39	0.33	0.21	0.19	0.20	0.14	0.00	0.03	0.01	
75-ACRE NEW	0.00	0.09	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
250-ACRE OLD	0.00	0.02	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
250-ACRE NEW	0.00	0.01	0.00	0.00	0.00	0.00					
250-ACRE PHASE	0.00	0.01	0.00	0.00	0.00	0.00					
75-ACRE OLD	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
75-ACRE NEW	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	0.00	8.37	11.56	13.29	65.01	70.13	0.43	0.43	0.42	62.96	
250-ACRE OLD	0.00	7.17	12.15	14.47	4.65	96.36	40.28	0.27	0.26	0.49	
250-ACRE NEW	0.00	1.29	6.52	9.28	10.98	0.15					
250-ACRE PHASE	0.00	0.19	22.56	24.25	0.48	0.57					
75-ACRE OLD	0.00	6.69	12.04	10.45	12.14	70.47	66.64	0.69	0.68	0.66	
75-ACRE NEW	0.00	1.23	5.96	9.08	10.78	0.52	0.36	12.82	0.36	0.28	0.24

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	0.00	0.42	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.40	
250-ACRE OLD	0.00	0.42	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.40	
250-ACRE NEW	0.00	0.12	0.00	0.00	0.00	0.00					
250-ACRE PHASE	0.00	0.12	0.00	0.00	0.00	0.00					
75-ACRE OLD	0.00	0.42	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.40	
75-ACRE NEW	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	0.00	145.99	144.44	78.27	77.52	37.61	22.33	14.31	0.00	16.93	
250-ACRE OLD	0.00	30.85	141.15	145.22	79.27	52.32	1.60	20.54	7.07	3.92	
250-ACRE NEW	0.00	8.89	124.02	124.94	126.36	127.05					
250-ACRE PHASE	0.00	8.89	124.02	124.94	57.06	57.19					
75-ACRE OLD	0.00	30.85	141.15	145.22	148.57	54.27	9.75	0.48	9.25	5.89	
75-ACRE NEW	0.00	8.89	124.02	124.94	126.36	127.05	27.96	22.60	0.00	0.00	160.31

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	0.00	0.19	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	
250-ACRE OLD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250-ACRE NEW	0.00	0.00	0.00	0.00	0.00	0.00					
250-ACRE PHASE	0.00	0.00	0.00	0.00	0.00	0.00					
75-ACRE OLD	0.00	0.00	0.00	0.00	0.14	0.14	0.55	0.55	0.55	0.55	
75-ACRE NEW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	0.00	55.12	12.82	102.38	218.00	5.09	124.58	199.99	0.41	14.99	
250-ACRE OLD	0.00	11.35	27.14	49.37	75.72	128.16	11.14	146.14	49.47	83.45	
250-ACRE NEW	0.00	3.07	0.00	134.05	45.54	0.75					
250-ACRE PHASE	0.00	2.68	35.22	128.80	0.21	6.55					
75-ACRE OLD	0.00	9.84	3.65	48.59	147.83	88.42	241.63	0.32	39.85	34.75	
75-ACRE NEW	0.00	1.25	0.00	127.42	29.72	105.64	183.83	65.13	0.00	0.00	0.00

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	0.00	210.09	169.20	194.32	361.05	113.35	147.86	215.25	1.35	95.42	
250-ACRE OLD	0.00	49.79	180.82	209.44	160.02	277.22	53.40	167.33	57.18	88.26	
250-ACRE NEW	0.00	13.37	130.54	268.27	182.88	127.95					
250-ACRE PHASE	0.00	11.88	181.80	277.99	57.75	64.31					
75-ACRE OLD	0.00	47.80	157.22	204.64	309.06	213.68	318.95	2.42	50.71	42.25	
75-ACRE NEW	0.00	11.49	129.98	261.44	166.86	233.21	212.15	100.55	0.36	0.28	160.55

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	0.00	101.94	56.01	71.57	1.07	1.34	84.64	92.17	0.00	21.17	
250-ACRE OLD	0.00	18.10	62.19	54.42	42.47	0.21	0.08	120.51	47.09	0.05	
250-ACRE NEW	0.00	6.30	68.03	82.60	0.17	0.17					
250-ACRE PHASE	0.00	6.30	63.64	58.00	0.17	0.17					
75-ACRE OLD	0.00	15.43	49.64	54.73	111.78	0.20	31.44	1.63	32.77	39.20	
75-ACRE NEW	0.00	4.42	68.23	82.60	0.17	0.17	15.36	70.50	14.93	57.78	0.59

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	0.00	67.73	40.88	8.33	6.82	7.05	24.56	13.15	8.53	24.27	
250-ACRE OLD	0.00	19.34	44.45	53.69	6.97	7.18	30.75	13.50	8.05	9.58	
250-ACRE NEW	0.00	9.16	34.00	44.66	7.04	7.05					
250-ACRE PHASE	0.00	9.16	34.00	44.66	7.04	7.05					
75-ACRE OLD	0.00	19.35	45.70	52.59	12.57	7.33	59.92	8.05	8.26	23.08	
75-ACRE NEW	0.00	9.16	36.83	44.24	7.04	7.05	73.64	18.05	1.44	8.74	9.70

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	0.00	379.76	266.09	274.22	368.94	121.74	257.06	320.57	9.88	140.86	
250-ACRE OLD	0.00	87.23	287.46	317.55	209.46	284.61	84.23	301.34	112.32	97.89	
250-ACRE NEW	0.00	28.83	232.57	395.53	190.09	135.17					
250-ACRE PHASE	0.00	27.34	279.44	380.65	64.96	71.53					
75-ACRE OLD	0.00	82.58	252.56	311.96	433.41	221.21	410.31	12.10	91.74	104.53	
75-ACRE NEW	0.00	25.07	235.04	388.28	174.07	240.43	301.15	189.10	16.73	66.80	170.84

Table D-1

Average Coal Prices
(Constant 2001 Dollars per Ton, Fob Mine)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	35.22	25.49	25.05	24.74	24.02	24.76	25.27	23.68	25.53	25.11	
250-ACRE OLD	35.22	27.22	25.87	25.31	24.81	24.39	25.14	24.52	25.08	26.45	
250-ACRE NEW	35.22	27.66	27.00	26.36	25.47	26.37					
250-ACRE PHASE	35.22	27.97	27.20	26.57	26.46	26.42					
75-ACRE OLD	35.22	27.63	26.70	26.14	24.38	25.64	24.29	24.74	25.89	26.54	
75-ACRE NEW	35.22	28.89	27.54	26.96	26.14	26.37	26.47	25.33	27.09	26.95	35.82
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
KY 2											
BASE CASE	35.02	25.27	24.70	24.15	23.44	24.49	24.79	23.38	25.37	24.64	
250-ACRE OLD	35.02	27.00	25.44	24.67	24.14	23.86	24.83	24.15	24.80	26.17	
250-ACRE NEW	35.02	27.43	26.60	25.74	24.96	25.91					
250-ACRE PHASE	35.02	27.73	26.79	26.00	25.88	26.00					
75-ACRE OLD	35.02	27.36	26.21	25.40	23.79	25.17	23.97	24.45	25.71	26.07	
75-ACRE NEW	35.02	28.68	27.16	26.38	25.57	25.95	26.02	24.91	26.75	26.41	34.76
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
KY 3											
BASE CASE	34.27	24.31	24.82	22.89	21.84	22.69	23.07	23.25	23.39	22.70	
250-ACRE OLD	34.27	26.19	24.65	23.49	22.73	21.85	23.05	21.62	23.07	24.00	
250-ACRE NEW	34.27	26.64	25.82	24.63	23.61	24.30					
250-ACRE PHASE	34.27	26.95	26.00	24.90	24.59	24.44					
75-ACRE OLD	34.27	26.63	25.44	25.20	22.27	24.65	22.03	23.98	23.88	23.81	
75-ACRE NEW	34.27	27.91	26.42	25.27	24.14	24.09	24.22	22.07	24.87	24.42	33.47
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
KY 4											
BASE CASE	34.88	25.17	24.29	0.00	0.00	0.00	0.00	0.00	25.46	24.58	
250-ACRE OLD	34.88	26.85	25.01	0.00	0.00	0.00	0.00	0.00	24.75	26.03	
250-ACRE NEW	34.88	27.26	26.23	25.04	24.54	25.50					
250-ACRE PHASE	34.88	27.53	26.34	25.27	25.37	25.60					
75-ACRE OLD	34.88	27.16	25.78	0.00	0.00	0.00	0.00	0.00	25.63	26.08	
75-ACRE NEW	34.88	28.48	26.76	25.73	25.08	25.53	0.00	0.00	26.69	26.36	34.40
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
WV C											
BASE CASE	34.75	25.38	25.09	24.57	23.95	24.49	24.94	22.42	24.09	23.77	
250-ACRE OLD	34.75	26.96	25.97	25.19	24.73	24.16	24.72	23.32	23.70	25.03	
250-ACRE NEW	34.75	27.85	27.32	26.72	25.63	26.08					
250-ACRE PHASE	34.75	28.09	27.62	26.90	26.80	26.31					
75-ACRE OLD	34.75	27.54	26.91	26.22	24.37	25.56	23.75	23.53	24.29	24.96	
75-ACRE NEW	34.75	29.07	28.08	27.31	26.45	26.42	26.51	24.03	25.11	25.19	33.54
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
WV E											
BASE CASE	35.77	26.11	24.81	23.40	22.48	22.97	23.17	23.06	24.97	25.72	
250-ACRE OLD	35.77	27.61	25.57	23.62	23.04	22.58	23.13	23.38	23.60	26.21	
250-ACRE NEW	35.77	28.21	26.72	25.10	24.23	24.32					
250-ACRE PHASE	35.77	28.50	26.83	25.10	25.12	24.66					
75-ACRE OLD	35.77	27.95	26.01	24.37	22.97	23.30	22.28	23.38	23.87	25.44	
75-ACRE NEW	35.77	29.46	27.02	25.41	24.88	24.04	23.95	23.53	25.23	25.85	33.48

Table D-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	34.91	24.92	23.33	22.66	22.03	22.44	22.64	21.96	23.80	24.21	
250-ACRE OLD	34.91	26.55	24.38	22.86	22.56	22.14	22.68	22.29	22.70	24.88	
250-ACRE NEW	34.91	27.22	25.45	24.40	23.55	23.55					
250-ACRE PHASE	34.91	27.36	25.51	24.46	24.45	23.99					
75-ACRE OLD	34.91	26.79	24.81	23.71	22.42	22.67	21.82	22.25	22.79	23.85	
75-ACRE NEW	34.91	28.28	25.59	24.80	24.08	23.28	23.37	22.41	24.25	23.51	31.48

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	34.22	24.84	24.69	24.50	23.56	24.30	24.87	22.49	24.24	23.88	
250-ACRE OLD	34.22	26.39	24.99	24.50	23.86	23.51	24.49	23.23	23.70	24.52	
250-ACRE NEW	34.22	27.24	26.40	26.57	25.91	26.82					
250-ACRE PHASE	34.22	27.45	26.48	26.34	26.52	26.34					
75-ACRE OLD	34.22	26.91	25.78	25.75	23.97	25.41	23.97	23.65	24.35	24.94	
75-ACRE NEW	34.22	28.30	27.23	27.74	26.71	26.81	27.15	25.26	26.11	25.93	35.33

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	34.09	24.68	24.39	23.99	22.99	23.88	24.48	22.27	24.05	23.65	
250-ACRE OLD	34.09	26.31	25.21	24.46	23.82	23.32	24.34	23.21	23.86	24.84	
250-ACRE NEW	34.09	27.03	26.43	25.87	25.05	25.84					
250-ACRE PHASE	34.09	27.35	26.57	26.09	26.10	25.85					
75-ACRE OLD	34.09	26.84	26.01	25.38	23.41	24.88	23.31	23.55	24.40	24.85	
75-ACRE NEW	34.09	28.38	27.20	26.62	25.73	25.80	25.64	24.19	25.76	25.41	34.65

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	34.48	24.91	24.22	23.68	22.86	23.50	23.82	22.18	23.97	23.91	
250-ACRE OLD	34.48	26.54	25.13	24.07	23.53	23.07	23.78	22.85	23.35	24.89	
250-ACRE NEW	34.48	27.26	26.26	25.48	24.54	24.81					
250-ACRE PHASE	34.48	27.51	26.39	25.61	25.46	25.03					
75-ACRE OLD	34.48	26.99	25.80	24.93	23.22	24.12	22.87	23.00	23.68	24.43	
75-ACRE NEW	34.48	28.51	26.77	26.00	25.08	24.61	24.64	23.30	24.97	24.45	32.41

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	35.09	25.35	24.85	24.37	23.66	24.59	25.00	23.53	25.42	24.82	
250-ACRE OLD	35.09	27.08	25.62	24.93	24.40	24.08	24.95	24.28	24.92	26.26	
250-ACRE NEW	35.09	27.51	26.75	25.96	25.14	26.10					
250-ACRE PHASE	35.09	27.82	26.94	26.21	26.10	26.18					
75-ACRE OLD	35.09	27.47	26.41	25.70	24.01	25.35	24.08	24.57	25.76	26.23	
75-ACRE NEW	35.09	28.76	27.30	26.59	25.78	26.12	26.20	25.06	26.90	26.64	35.28

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	36.44	27.17	26.64	26.10	25.43	26.31	26.95	24.48	26.56	26.14	
250-ACRE OLD	36.44	28.92	27.52	26.53	25.89	25.77	26.78	25.48	26.38	25.15	
250-ACRE NEW	36.44	29.64	28.78	27.57	27.15	28.30					
250-ACRE PHASE	36.44	30.01	28.85	27.85	28.29	28.33					
75-ACRE OLD	36.44	29.56	28.28	27.39	25.62	27.24	25.66	26.08	27.01	25.11	
75-ACRE NEW	36.44	30.97	29.27	28.30	27.76	28.30	27.92	25.32	27.39	27.74	40.17

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	34.91	25.31	24.73	24.19	23.35	24.13	24.58	22.88	24.74	24.45	
250-ACRE OLD	34.91	26.99	25.58	24.67	24.11	23.66	24.49	23.65	24.23	25.33	
250-ACRE NEW	34.91	27.62	26.76	25.93	25.09	25.66					
250-ACRE PHASE	34.91	27.92	26.91	26.13	26.09	25.85					
75-ACRE OLD	34.91	27.45	26.33	25.53	23.76	24.86	23.52	23.88	24.72	25.06	
75-ACRE NEW	34.91	28.90	27.31	26.55	25.71	25.58	25.59	24.18	25.94	25.71	34.72

Table E-1

Megawatt-Hours of Generation

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443	2,155,394	2,121,634	2,121,634	2,121,634	
250-ACRE OLD	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443	2,155,394	2,121,634	2,121,634	2,121,634	
250-ACRE NEW	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443					
250-ACRE PHASE	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443					
75-ACRE OLD	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443	2,155,394	2,121,634	2,121,634	2,121,634	
75-ACRE NEW	2,123,435	2,128,837	2,134,238	2,139,640	2,145,041	2,150,443	2,155,394	2,121,634	2,121,634	2,121,634	2,121,634

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	323,925	374,160	424,395	474,629	423,534	447,754	461,457	0	0	0	
250-ACRE OLD	323,925	374,160	424,395	474,629	423,534	447,754	0	0	0	0	
250-ACRE NEW	323,925	374,160	424,395	474,629	0	0					
250-ACRE PHASE	323,925	374,160	424,395	416,285	0	0					
75-ACRE OLD	323,925	374,160	424,395	416,285	423,534	438,972	472,038	0	0	0	
75-ACRE NEW	323,925	374,160	424,395	474,629	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	675,656	711,542	680,236	587,926	573,229	34,223	34,223	34,223	34,223	34,223	
250-ACRE OLD	675,656	711,542	599,116	587,926	34,223	34,223	34,223	34,223	34,223	34,223	
250-ACRE NEW	675,656	711,542	599,116	587,926	34,223	34,223					
250-ACRE PHASE	675,656	711,542	599,116	587,926	34,223	34,223					
75-ACRE OLD	675,656	711,542	599,116	587,926	34,223	34,223	34,223	34,223	34,223	34,223	
75-ACRE NEW	675,656	610,306	599,116	587,926	34,223	34,223	34,223	34,223	34,223	34,223	34,223

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	3,055,270	3,084,117	3,112,963	3,107,471	3,136,002	3,164,533	3,194,070	3,194,070	3,194,070	3,194,070	
250-ACRE OLD	3,055,270	3,089,002	3,112,963	3,107,471	3,136,002	3,164,533	3,194,070	3,194,070	3,194,070	3,194,070	
250-ACRE NEW	3,055,270	3,088,025	3,112,963	3,107,471	3,136,002	3,164,533					
250-ACRE PHASE	3,055,270	3,088,513	3,112,963	3,107,471	3,136,002	3,164,533					
75-ACRE OLD	3,055,270	3,089,002	3,112,963	3,107,471	3,136,002	3,164,533	3,194,070	3,194,070	3,194,070	3,194,070	
75-ACRE NEW	3,055,270	3,089,002	3,112,963	3,107,471	3,136,002	3,164,533	3,194,070	3,194,070	3,194,070	3,194,070	3,194,070

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	21,530,733	21,835,448	21,669,331	21,547,871	21,851,469	19,403,986	19,742,119	18,830,782	18,829,724	18,830,612	
250-ACRE OLD	21,530,733	21,594,004	21,512,683	21,502,314	21,741,207	21,775,492	19,708,842	18,834,237	18,834,237	18,705,238	
250-ACRE NEW	21,530,733	21,564,015	21,512,683	21,385,248	18,920,144	18,744,508					
250-ACRE PHASE	21,530,733	21,482,364	21,512,683	21,370,064	18,922,311	18,746,741					
75-ACRE OLD	21,530,733	21,765,769	21,468,335	21,358,253	21,377,274	19,334,547	19,780,646	18,832,432	18,744,684	16,775,490	
75-ACRE NEW	21,530,733	21,459,256	21,444,980	20,394,415	19,469,692	18,792,819	21,084,586	18,830,553	16,766,117	16,854,873	18,784,214

Table E-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	59239

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	25,261,659	25,631,107	25,462,530	25,243,268	25,560,700	22,602,742	22,970,412	22,059,075	22,058,017	22,058,905	
250-ACRE OLD	25,261,659	25,394,548	25,224,762	25,197,711	24,911,432	24,974,248	22,937,135	22,062,530	22,062,530	21,933,531	
250-ACRE NEW	25,261,659	25,363,582	25,224,762	25,080,645	22,090,369	21,943,264					
250-ACRE PHASE	25,261,659	25,282,419	25,224,762	25,065,461	22,092,536	21,945,497					
75-ACRE OLD	25,261,659	25,566,313	25,180,414	25,053,650	24,547,499	22,533,303	23,008,939	22,060,725	21,972,977	20,003,783	
75-ACRE NEW	25,261,659	25,158,564	25,157,059	24,089,812	22,639,917	21,991,575	24,312,879	22,058,846	19,994,410	20,083,166	22,071,746

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	2,447,360	2,502,997	2,558,633	2,614,269	2,568,575	2,598,197	2,616,851	2,121,634	2,121,634	2,121,634	
250-ACRE OLD	2,447,360	2,502,997	2,558,633	2,614,269	2,568,575	2,598,197	2,155,394	2,121,634	2,121,634	2,121,634	
250-ACRE NEW	2,447,360	2,502,997	2,558,633	2,614,269	2,145,041	2,150,443					
250-ACRE PHASE	2,447,360	2,502,997	2,558,633	2,555,925	2,145,041	2,150,443					
75-ACRE OLD	2,447,360	2,502,997	2,558,633	2,555,925	2,568,575	2,589,415	2,627,432	2,121,634	2,121,634	2,121,634	
75-ACRE NEW	2,447,360	2,502,997	2,558,633	2,614,269	2,145,041	2,150,443	2,155,394	2,121,634	2,121,634	2,121,634	2,121,634

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All VA											
BASE CASE	14,339,034	14,505,891	15,134,866	14,778,080	14,833,424	15,023,532	15,472,500	16,455,296	18,355,939	18,294,427	
250-ACRE OLD	14,339,034	14,516,621	14,684,765	15,029,789	14,835,977	15,015,167	15,364,766	16,458,321	18,215,708	18,979,464	
250-ACRE NEW	14,339,034	14,517,088	14,780,537	14,861,134	14,835,320	14,626,314					
250-ACRE PHASE	14,339,034	14,516,613	14,655,901	15,023,069	14,643,307	14,626,314					
75-ACRE OLD	14,339,034	14,516,621	14,560,432	14,861,643	14,835,977	14,626,314	15,745,919	16,909,042	18,358,965	18,979,464	
75-ACRE NEW	14,339,034	14,732,526	14,608,611	15,094,332	14,294,018	15,271,373	15,801,842	15,729,417	17,392,978	18,297,452	19,430,942

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Study											
BASE CASE	42,048,053	42,639,995	43,156,029	42,635,617	42,962,699	40,224,471	41,059,763	40,636,005	42,535,590	42,474,966	
250-ACRE OLD	42,048,053	42,414,166	42,468,160	42,841,769	42,315,984	42,587,612	40,457,295	40,642,485	42,399,872	43,034,629	
250-ACRE NEW	42,048,053	42,383,667	42,563,932	42,556,048	39,070,730	38,720,021					
250-ACRE PHASE	42,048,053	42,302,029	42,439,296	42,644,455	38,880,884	38,722,254					
75-ACRE OLD	42,048,053	42,585,931	42,299,479	42,471,218	41,952,051	39,749,032	41,382,290	41,091,401	42,453,576	41,104,881	
75-ACRE NEW	42,048,053	42,394,087	42,324,303	41,798,413	39,078,976	39,413,391	42,270,115	39,909,897	39,509,022	40,502,252	43,624,322

Table F-1

Weighted Average Wholesale Electricity Price (Lambda Cost)
(Constant 2001 Dollars per MWHr)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	25.86	18.17	17.68	17.68	18.62	18.59	18.69	20.64	20.82	21.98	
250-ACRE OLD	25.86	18.42	17.47	17.60	18.83	18.36	18.86	20.71	20.90	21.73	
250-ACRE NEW	25.86	18.50	17.76	17.50	19.29	18.65					
250-ACRE PHASE	25.86	18.52	17.69	17.94	19.07	18.53					
75-ACRE OLD	25.86	18.46	17.47	17.42	18.61	18.58	18.43	20.74	20.84	21.86	
75-ACRE NEW	25.86	18.91	17.80	17.89	19.46	18.75	18.71	20.95	21.28	21.98	23.33

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	24.21	18.17	17.64	17.68	17.61	17.59	17.74	0.00	0.00	0.00	
250-ACRE OLD	24.21	18.42	17.43	17.59	17.80	17.39	0.00	0.00	0.00	0.00	
250-ACRE NEW	24.21	18.50	17.74	17.50	0.00	0.00					
250-ACRE PHASE	24.21	18.52	17.67	17.92	0.00	0.00					
75-ACRE OLD	24.21	18.46	17.43	17.42	17.67	17.58	17.51	0.00	0.00	0.00	
75-ACRE NEW	24.21	18.91	17.78	17.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	25.87	18.17	17.68	17.68	18.62	18.59	18.69	20.64	20.82	21.98	
250-ACRE OLD	25.87	18.42	17.46	17.60	18.83	18.36	18.86	20.71	20.90	21.73	
250-ACRE NEW	25.87	18.50	17.76	17.50	19.29	18.65					
250-ACRE PHASE	25.87	18.52	17.69	17.94	19.07	18.53					
75-ACRE OLD	25.87	18.46	17.46	17.42	18.61	18.58	18.43	20.74	20.84	21.86	
75-ACRE NEW	25.87	18.91	17.80	17.89	19.46	18.75	18.71	20.96	21.28	21.98	23.34

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	28.40	20.32	20.75	20.19	21.42	21.48	21.52	22.42	22.73	23.08	
250-ACRE OLD	28.40	20.32	20.50	20.18	21.43	21.48	21.48	22.61	22.74	23.07	
250-ACRE NEW	28.40	20.32	20.54	20.36	21.67	21.57					
250-ACRE PHASE	28.40	20.32	20.52	20.34	21.58	21.52					
75-ACRE OLD	28.40	20.32	20.51	20.21	21.42	21.48	21.48	22.34	22.94	23.07	
75-ACRE NEW	28.40	20.47	20.64	20.28	21.76	21.61	21.61	22.87	23.03	23.19	24.19

Table F-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	26.79	19.44	18.97	18.99	19.93	19.63	19.73	20.75	21.97	22.94	
250-ACRE OLD	26.79	19.70	18.75	18.91	20.14	19.37	19.82	20.83	21.82	22.73	
250-ACRE NEW	26.79	19.77	19.05	18.80	20.74	19.73					
250-ACRE PHASE	26.79	19.79	18.98	19.25	20.51	19.63					
75-ACRE OLD	26.79	19.72	18.75	18.72	19.94	19.62	19.53	20.78	21.85	22.98	
75-ACRE NEW	26.79	20.18	19.09	19.26	20.93	19.81	19.67	20.92	22.26	23.07	24.81

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	23.34

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	26.96	19.51	19.15	19.11	20.08	19.89	19.98	20.99	22.08	22.96	
250-ACRE OLD	26.96	19.74	18.94	19.04	20.30	19.64	20.05	21.09	21.95	22.78	
250-ACRE NEW	26.96	19.80	19.20	18.96	20.87	19.99					
250-ACRE PHASE	26.96	19.82	19.14	19.35	20.66	19.90					
75-ACRE OLD	26.96	19.76	18.94	18.87	20.13	19.88	19.80	21.01	22.01	22.99	
75-ACRE NEW	26.96	20.18	19.25	19.36	21.04	20.07	19.92	21.20	22.38	23.09	24.71

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	25.64	18.17	17.67	17.68	18.45	18.42	18.52	20.64	20.82	21.98	
250-ACRE OLD	25.64	18.42	17.46	17.60	18.66	18.19	18.86	20.71	20.90	21.73	
250-ACRE NEW	25.64	18.50	17.76	17.50	19.29	18.65					
250-ACRE PHASE	25.64	18.52	17.69	17.94	19.07	18.53					
75-ACRE OLD	25.64	18.46	17.46	17.42	18.46	18.41	18.26	20.74	20.84	21.86	
75-ACRE NEW	25.64	18.91	17.80	17.89	19.46	18.75	18.71	20.95	21.28	21.98	23.33

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All VA											
BASE CASE	28.66	20.33	20.64	20.15	21.44	21.43	21.58	22.48	22.83	23.19	
250-ACRE OLD	28.66	20.36	20.39	20.12	21.47	21.41	21.55	22.67	22.82	23.23	
250-ACRE NEW	0.00	20.37	20.47	20.29	21.73	21.59					
250-ACRE PHASE	28.66	20.38	20.44	20.30	21.67	21.54					
75-ACRE OLD	28.66	20.37	20.40	20.15	21.44	21.51	21.40	22.37	23.03	23.26	
75-ACRE NEW	0.00	20.56	20.57	20.30	21.81	21.64	21.62	22.80	23.11	23.28	24.28

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Study Area											
BASE CASE	26.84	19.71	19.59	19.38	20.45	20.37	20.49	21.58	22.34	23.01	
250-ACRE OLD	26.84	19.87	19.35	19.33	20.61	20.17	20.56	21.71	22.27	22.93	
250-ACRE NEW	26.84	19.92	19.56	19.34	21.11	20.52					
250-ACRE PHASE	26.84	19.93	19.50	19.60	20.95	20.44					
75-ACRE OLD	26.84	19.89	19.35	19.23	20.49	20.38	20.31	21.55	22.39	23.06	
75-ACRE NEW	26.84	20.24	19.62	19.61	21.24	20.60	20.50	21.82	22.64	23.12	24.45

Table G-1

Utilities' Environmental Clean-Up Capital Expenditures
(Constant 2001 Dollars)

Region	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 1											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 2											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 3											
BASE CASE	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
250-ACRE OLD	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
250-ACRE NEW	0	0	0	0	6,720,191	0					
250-ACRE PHASE	0	0	0	0	6,720,191	0					
75-ACRE OLD	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
75-ACRE NEW	0	0	0	0	6,720,191	0	0	16,877,843	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KY 4											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV C											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV E											
BASE CASE	0	0	0	0	7,410,199	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	7,410,199	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	7,253,680	0					
250-ACRE PHASE	0	0	0	0	7,253,680	0					
75-ACRE OLD	0	0	0	0	7,452,999	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	7,253,680	0	0	0	0	0	0

Table G-1 (cont.)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV N											
BASE CASE	209,349	0	0	19,812,967	21,604,468	0	0	43,012,286	0	0	
250-ACRE OLD	209,349	0	0	34,476,811	27,818,454	0	0	43,012,286	0	0	
250-ACRE NEW	209,349	0	0	30,237,152	16,343,055	0					
250-ACRE PHASE	209,349	0	0	30,237,152	16,364,661	0					
75-ACRE OLD	209,349	0	0	35,224,441	27,517,336	0	0	43,012,286	0	0	
75-ACRE NEW	209,349	0	0	36,333,508	18,899,356	0	0	25,050,168	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV S											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
WV SW											
BASE CASE	0	0	0	0	0	0	0	0	0	0	
250-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
250-ACRE NEW	0	0	0	0	0	0					
250-ACRE PHASE	0	0	0	0	0	0					
75-ACRE OLD	0	0	0	0	0	0	0	0	0	0	
75-ACRE NEW	0	0	0	0	0	0	0	0	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All WV											
BASE CASE	209,349	0	0	19,812,967	29,014,668	0	0	43,012,286	0	0	
250-ACRE OLD	209,349	0	0	34,476,811	35,228,653	0	0	43,012,286	0	0	
250-ACRE NEW	209,349	0	0	30,237,152	23,596,735	0					
250-ACRE PHASE	209,349	0	0	30,237,152	23,618,341	0					
75-ACRE OLD	209,349	0	0	35,224,441	34,970,336	0	0	43,012,286	0	0	
75-ACRE NEW	209,349	0	0	36,333,508	26,153,035	0	0	25,050,168	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All E. KY											
BASE CASE	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
250-ACRE OLD	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
250-ACRE NEW	0	0	0	0	6,720,191	0					
250-ACRE PHASE	0	0	0	0	6,720,191	0					
75-ACRE OLD	0	0	0	0	6,720,191	0	0	16,877,843	0	0	
75-ACRE NEW	0	0	0	0	6,720,191	0	0	16,877,843	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
VA											
BASE CASE	0	0	0	0	5,458,247	110,240	3,594	11,802,724	0	0	
250-ACRE OLD	0	0	0	0	5,581,295	0	111,617	28,658,885	0	0	
250-ACRE NEW	0	0	0	0	5,145,852	7,448					
250-ACRE PHASE	0	0	0	0	4,988,509	7,448					
75-ACRE OLD	0	0	0	0	5,354,984	110,134	3,594	29,000,638	0	0	
75-ACRE NEW	0	0	0	0	4,715,135	0	0	29,000,638	0	0	0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Regions											
BASE CASE	209,349	0	0	19,812,967	41,193,105	110,240	3,594	71,692,853	0	0	
250-ACRE OLD	209,349	0	0	34,476,811	47,530,138	0	111,617	88,549,014	0	0	
250-ACRE NEW	209,349	0	0	30,237,152	35,462,777	7,448					
250-ACRE PHASE	209,349	0	0	30,237,152	35,327,041	7,448					
75-ACRE OLD	209,349	0	0	35,224,441	47,045,510	110,134	3,594	88,890,767	0	0	
75-ACRE NEW	209,349	0	0	36,333,508	37,588,361	0	0	70,928,648	0	0	0

Table H-1

Electricity Capacity Capital Investments by Type

(Constant 2001 Dollars)

		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
		MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $	MW Added	Capital $
BASE CASE																					
VA	CC	0	0	288	115,392,000	365	146,052,000	364	145,548,000	384	153,592,000	394	157,736,000	541	216,376,000	0	0	561	224,284,000		
VA	GT	1,182	295,457,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
VA	COAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	520	728,000,000	0	0		
250-ACRE OLD																					
VA	CC	0	0	291	116,512,000	365	145,992,000	364	145,552,000	384	153,592,000	394	157,736,000	541	216,376,000	0	0	561	224,284,000		
VA	GT	1,179	294,792,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
VA	COAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	520	728,000,000	0	0		
250-ACRE NEW																					
VA	CC	0	0	291	116,400,000	365	146,000,000	364	145,600,000	384	153,600,000										
VA	GT	1,180	295,000,000	0	0	0	0	0	0	0	0										
VA	COAL	0	0	0	0	0	0	0	0	0	0										
250-ACRE PHASE																					
VA	CC	0	0	291	116,400,000	365	146,000,000	364	145,600,000	384	153,600,000										
VA	GT	1,179	294,750,000	0	0	0	0	0	0	0	0										
VA	COAL	0	0	0	0	0	0	0	0	0	0										
75-ACRE OLD																					
VA	CC	0	0	291	116,512,000	365	145,992,000	364	145,552,000	384	153,592,000	393	157,336,000	541	216,376,000		0	561	224,284,000		
VA	GT	1,179	294,792,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
VA	COAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	520	728,000,000	0	0		
75-ACRE NEW																					
VA	CC	0	0	291	116,400,000	365	146,000,000	364	145,600,000	384	153,600,000	394	157,600,000	541	216,400,000	0	0	561	224,400,000	549	219,600,000
VA	GT	1,179	294,750,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VA	COAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	520	728,000,000	0	0	0	0

Table I-1

Major Coal Mine Operating Costs by Category
For Entire Study Area
(Numbers Do NOT Include Any New Costs Increases for Sensitivity Runs)

	Deep Mines $/Ton	Surface Mines $/Ton
Labor	$6.24	$4.30
Materials/Supply	$3.79	$8.36
Trucking	$1.12	$1.58
Coal Washing	$2.90	$0.40

Table J-1

Average U.S. Wholesale Electricity Price (Lambda Cost)
(Constant 2001 Dollars per MWHr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
BASE CASE	37.25	22.54	22.44	22.32	23.06	22.19	22.33	23.30	23.65	24.12	
250-ACRE OLD	37.25	22.63	22.33	22.24	23.09	22.12	22.36	23.40	23.66	24.12	
250-ACRE NEW	37.25	22.65	22.41	22.30	23.36	22.40					
250-ACRE PHASE	37.25	22.66	22.40	22.28	23.33	22.36					
75-ACRE OLD	37.25	22.64	22.34	22.26	23.07	22.17	22.12	23.41	23.64	24.12	
75-ACRE NEW	37.25	22.82	22.45	22.35	23.40	22.45	22.46	23.48	23.85	24.24	25.23